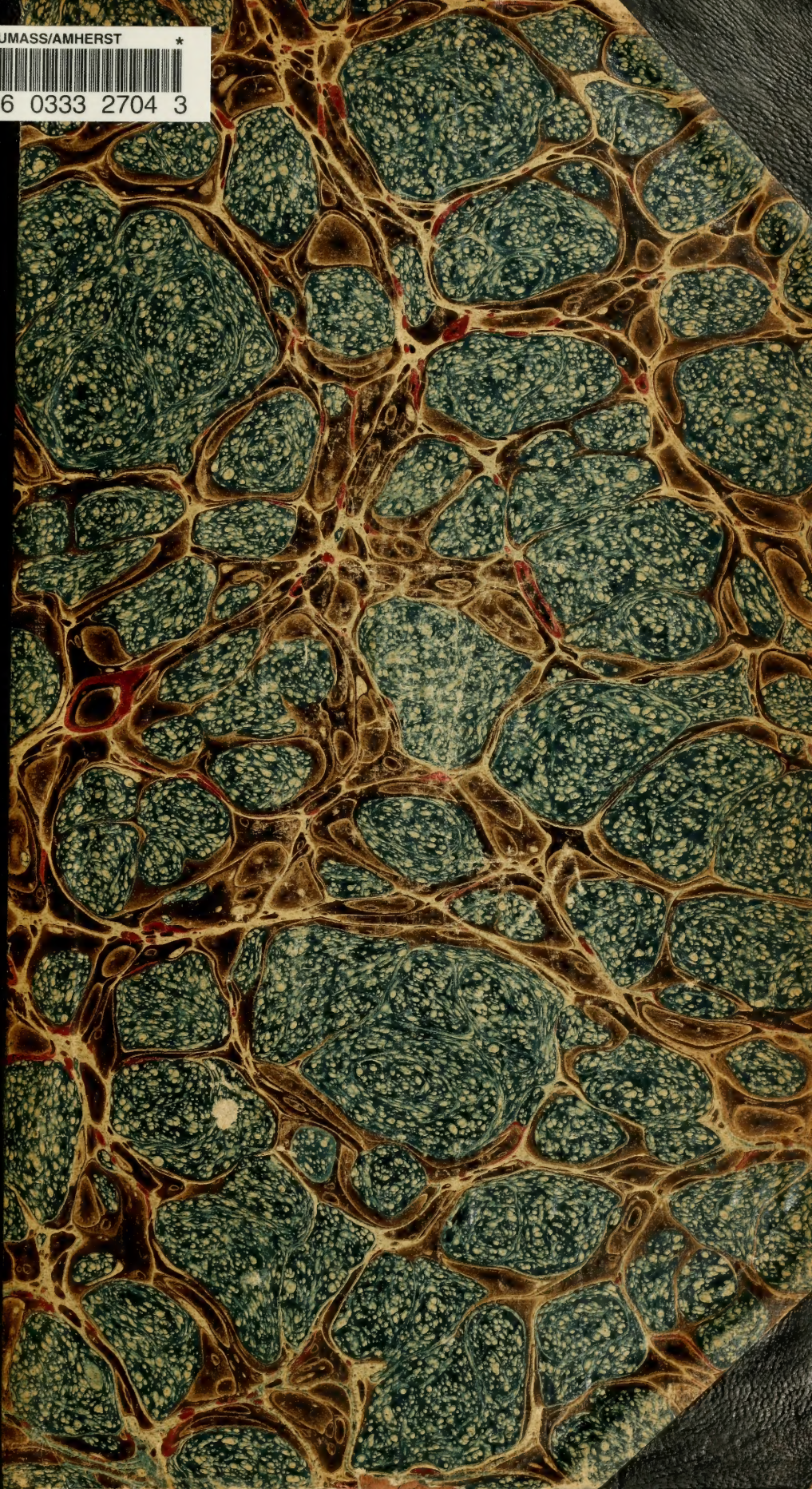


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Vol. XVII.

JANUARY 1, 1889.

No. 1.

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SOMETHING ABOUT BEE-HIVES.

FRIEND DOOLITTLE TALKS TO US ABOUT THEIR
PROPER SIZE, AND GIVES HIS REASONS.

I AM requested to give an article in GLEANINGS, on bee-hives. In doing this I will simply give the readers a little of my work in the past, and how I was led along step by step till I adopted the size of brood-chambers which I now use. When I first commenced to keep bees, all of the hives then in use contained from 2000 to 2500 cubic inches of space for a brood-chamber. After using such a hive for a year or two I came to the conclusion that this brood-chamber was too large, so I went to studying on the matter to see if I had concluded right. By many carefully conducted experiments I found that queens, as a rule, would not occupy more than 800 square inches of comb with brood for any length of time; hence it was plain to be seen, that, if I used a hive of the usual size which gave 1450 square inches of comb surface, I should have 650 square inches of comb to be occupied with honey and pollen. In case I hived a new swarm in such a hive, I should have from 500 to 600 square inches of comb filled with the best of honey, which would be from 25 to 30 pounds. We were told that this extra room was needed in case of a poor season, so as to insure honey enough for safe wintering. So each year my bees were wintering on from 25 to 30 pounds of the very best of honey, which should go into boxes, and be turned into cash; and in case of a poor season, the bees could be looked after; and if they did not have honey enough for winter, they could be fed sugar syrup, or given frames of honey, if we had such on hand.

Another thing, I found that, in having this amount of honey stored in the hive, the bees were very loth to commence work in boxes afterward; for in doing this they got to crowding the queen, and also they had sealed honey next the sections, instead of brood, which brood all know is a great enticer into the sections. In order not to get any pollen in the sections, I allowed 200 square inches of comb (above the 800 the queen occupied) for that, so I had 1000 square inches of comb space, or about 1500 cubic inches as the right size for the brood-chamber, regardless of what style of frame is used. Of course, the frames will not always give just the number of square inches inside of them which is required, but we can use the number which comes the nearest to it. For instance: I use nine Gallup frames, which give 1035 square inches of comb; while if I used but eight it would give me but 920. To get the square inches of comb in the frame, multiply the length by the depth, then use the number of frames which comes the nearest to 1000 inches. Mr. Gallup used 12 frames in his hive; and as he was my teacher, I, of course, used the same number when I first began. When I came to see things as above, I reduced them to nine by using three blank boards, or dummies, in place of the frames. The number of frames can be reduced at any time in any hive, in this way, with but little expense, and that, too, without disturbing the hive at all, or altering the space given to surplus above. These boards I made of inch lumber, the size of the inside of the hive (fitting loosely) below the rabbets, with the top-bar of a frame nailed thereto, so that it hangs in the hive just like a frame. Later years I have used what is termed "the contraction method," and think that at times

there is an advantage in it; but, so far as I have now explained, there is no contraction about it, for this is as large as I would have a hive when working for comb honey, as it gives the queen all the room she will occupy, and more room than this is worse than useless. Hives should be made so that all of the bees can be kept profitably at work; and if you have a three-frame nucleus well supplied with bees and queen, you should be able to get just as much comb honey from it in proportion to its numbers, as from a full colony. Unless a hive is calculated for this, it is lacking just one important feature. Hives as above described require less manipulation to secure good returns from them than do either larger or smaller hives; yet, do and say what we will, it is the management of hives that gives the practical apiarist good returns of snow-white comb honey—such as sells readily in any market in the world, when a second quality will go begging. Whatever hives we may use, they must be diligently looked after from the time spring opens till the bees are ready for winter; and unless a person can thus do, he had better not go into apiculture expecting to make a success of it.

As hinted at above, one secret of success in getting comb honey is to get the brood-combs all occupied with brood before the honey harvest opens, so that, when it does commence, the bees are obliged to put the honey in the sections. If we use a small brood-chamber it will be seen that the brood comes clear to the tops of the frames or hive, and consequently very close to the sections; hence the bees readily enter them, while with a large brood-chamber, the bees store the comb the queen does not occupy, with honey at the beginning of the harvest, so that the sections are excluded from the brood by several inches of sealed honey, which, not liking to pass over, the bees often refuse to go in at all. Gallup saw this point, even though he advocated a large hive; for he said, more than 25 years ago, "We should never allow the bees to get in advance of the queen; for if we do, the prosperity of the colony is checked at once; that is, if the bees are allowed to fill the combs with honey in the spring before the queen has filled them with brood, the colony will be an unprofitable one." This point is one well worthy of our closest attention; and it is only as we look to all of these points, and bring them into line with our work, that we can expect to meet with the greatest success. I have given this article thus early, so that all who are thinking of making hives this present winter can try a few as above, so as to see if I am right.

Borodino, N. Y., Dec. 16, 1888. G. M. DOOLITTLE.

SWEET CLOVER.

ITS VALUE AS A HONEY-PLANT IN THE REGION OF
SALT LAKE CITY.

BEING requested by the editor to write an article on the above subject, I have written up the habits, etc., of the plant. Some of the points which I shall give are probably known to a great many of the fraternity, but I think they will bear repeating.

Sweet clover grows here along the water-courses, moist waste places, along the roadsides, and in neglected fields. It grows from six inches to as many feet in height, according to the location, and it is covered with an abundance of bloom from top to bottom, yielding in most seasons an abundance

of nectar, which, after being gathered and stored, produces honey of the very best quality and color. It does not generally bloom in the first year; but in the second it commences about the first of July, and keeps up a continual bloom until killed by frost, furnishing bees with pasturage, generally from the middle of July until the latter part of August.

Sweet clover is sometimes used for pasturage, and also for making hay, if cut when young, though it is a long way behind alfalfa for that purpose. Though it is sometimes relished by stock, very few would sow it for feeding. If eaten while green it is in a measure a cause of hoven, or bloat, in cows. If you wish good milk or butter you had better not feed it to milch cows, as it imparts a very disagreeable taste to it. If eaten off by stock it will soon recover, and produce an abundance of bloom for the bees.

It is a very fair fertilizer; and it is also claimed that, if planted on alkali land, it will feed on the alkali and exhaust it, besides bringing to the surface, with its long roots, elements necessary to plant-life.

As sweet clover is a biennial it is not a very hard weed to eradicate, and very seldom troubles cultivated fields, though it will sometimes seed a field; and if such field is planted to grain the following season, it will come up, and is cut off only with the reaper. Next season, if the same field be neglected, it will quite likely be covered with sweet clover, and that, too, sometimes as high as your head. If a field is cultivated as it should be for two seasons, the clover will entirely disappear. The plant requires a little moisture in the soil the first year; but after that it will grow without. I consider it, for my part, a great deal better to see a roadside lined with it than the sunflowers, etc., that generally grow in such places.

Now, to sum up, sweet clover is our main honey crop in this locality. It is our best honey; and said honey, I may say without boasting, compares favorably with the best grades known.

I do not think it will pay to sow it for honey alone, unless on such land as is considered worthless; but I think it would be a benefit to such land.

As to the amount of nectar it will produce per acre, I am unable to say; but I think it will compare favorably with white clover; in fact, I think that it produces fully two-thirds of our honey crop in this locality, and I should consider this a poor country for honey, if it were destroyed; but as it is, we generally get a crop; that is, the bees generally have some honey to spare.

J. C. SWANER.

Salt Lake City, Utah, Dec. 22, 1888.

I would say to our readers, that it seems to me friend S. has been quite careful and conscientious in giving the objectionable features of sweet clover in the region of Salt Lake City, as well as the good qualities. In that locality there are a very few plants that will stand the fierce drouth of summer; but sweet clover seems to be one of them, and it might be easily grown on thousands of acres that now bear nothing but weeds of no value. Much of this desert soil is so light that it is very easily prepared for a seed-bed. After sweet clover has once got a start, it furnishes about as permanent bee-pasturage as any thing I have ever found. In fact, I could not find any

of the bee-keepers around Salt Lake City or Ogden who say they ever have seasons of no honey at all, such as we have had here several times during the past twenty years. Not only does sweet clover yield honey, but, after testing it in a good many places, I pronounced it equal in appearance and flavor to any honey we have in the world. When my Notes of Travel get far enough along to reach it, you will see what I wrote down on the spot. The first time I tasted it at friend Woodmanse's I uttered an exclamation of surprise, and asked him what was the source of the beautiful honey. Even before he spoke, there seemed something familiar in the delicate flavor; and when he said sweet clover, I recognized it as plainly as if it were but a piece of stalk in my mouth. It tastes very much as sweet clover smells when its green leaves are bruised slightly. The flavor is not rank enough to be at all disagreeable. The extracted honey is very thick, and has the same beautiful flavor as the comb honey. It seems to me that these facts give us a wonderful opening for starting a honey-farm where land is cheap, and nothing else will grow on account of the long severe drouths. We should be glad of more facts from those who have had experience with it in desert localities.

THAT WINTERING PROBLEM.

IS IT OR IS IT NOT SOLVED?

ON the 9th of December, and Sunday at that, I had to set all my strong colonies out of the cellar. It is just one month since they were set in, during all of which time as a whole it was too hot to control them. The result is, most of them have symptoms of disease. They had a good flight, which may help them some. I worry more over the wintering problem than all other features of bee-keeping put together. No wonder that I devour every scrap of bee-lore on this topic that falls within reach. Some time ago, Mr. Heddon came out in his prospectus, "The Wintering Problem Solved." This was taking. 'Twas enough to sell a thousand copies at one clip. If I remember, he stated that "bees could be wintered with the certainty of our domestic cattle." Surely, then, in the interest of our pursuit it is only fair to ask Mr. Heddon if he has been able to do so.

I wish he could say yes.

I was gratified to observe in the November issue of the *Review* the semblance of unity in one feature of cellar wintering. I felt thankful for that number; for, as it turns up in practice, we have a great deal that conflicts with the theorists. I hold, that, so long as a batch of men continue to disagree, and that, too, upon points where "location" won't close up the breach, to put it honestly, I refuse to believe that they know whereof they affirm. Have we been able to safely anchor any of the speculative barques upon the sea of apiculture? I have thought, so far as GLEANINGS is concerned, that Uncle Amos ought to have been a sort of supreme court from whom there was no appeal. But instead he says, "Boys, let us shake hands across this bloody chasm. Can I sell you any thing to-day?" I am deeply interested in all that

pertains to the honey-bee. I love light and truth, and would follow it; but as it turns out, I am chagrined to think that, after all, I have been following the blind gropings of a Cyclops around the walls of his cave.

I. HAMILTON.

Beason, III.

Friend H., Mr. Heddon can answer for himself. Does the expression, "Can I sell you any thing to-day?" exactly fit Uncle Amos? If you will prepare your bees in chaff hives, as directed in the A B C book, I feel sure they will winter just as well as our bees do, *year after year*, here at the Home of the Honey-Bees. My experience is, that those who work on Sunday usually have trouble.

CABBAGE AND CAULIFLOWER FOR '89.

H. A. MARCH ASKS ABOUT THE JERSEY WAKEFIELDS.

FRIEND ROOT:—I asked you to give me some reports (good or bad) on the cauliflower seed I sent you for trial. I haven't received a bad report yet. If yours is bad it may take a little of the conceit out of me, for I begin to think I can raise better seed than they raise in Germany or Holland; and, what is better, I can raise it at *less than half* the price it costs there. I sent, as you advised me to, some samples to W. J. Green, Columbus, and this is what he says:

All of the varieties sent give satisfaction. One thing is noteworthy about your seed; and that is, its large size and great vitality, producing very strong healthy plants. If you can grow seed equal to that sent us, you need not hesitate to make high claims for it.

You see, this is a new industry. Cauliflower seed, I believe, has never been grown in this country by field culture before I made the trial here on Puget Sound. All of the best seed has been imported from Erfurt, Germany, at a cost of about \$40.00 per lb. Now, here in Washington Territory we can raise just as good seed for \$15.00 per lb. But prejudice is so strong in favor of imported seed that dealers are afraid to come out and offer the seed on its own merits. The question is, How shall I push my seed forward so that people can get cheaper seed? Can you advise me? What do you think of this plan? Get the address of all the experiment stations in the country, and send them samples for trial, and publish their reports in a paper like the *Rural New Yorker*. How to get their address, that is the next thing. Can you tell me how that can be done?

H. A. MARCH.

Fidalgo, Skagit Co., Wash. Ter.

Well, friend M., we raised so many cauliflowers we could hardly sell them or give them away; for, to tell the truth, for a long while we offered cauliflower at the same price per pound as we sold Jersey Wakefield cabbages. But our Medina people are so little accustomed to using cauliflower unless it be for pickling, the cabbage rather took the preference, even though the price was alike—3 cts. a pound. During the fall we had rather better demand when they commenced using it for pickles, and we have quite pretty heads of Snowball cauliflower down in our greenhouse at this date, Dec. 27. Will the friends who tested the cabbage and cauliflower seed last season please tell us briefly how the seeds turned out? If I understand it correctly, friend March does

not care to sell seeds at retail, so you may send your orders to us, if you please. Should you wish seed, however, to sell again, perhaps the better way would be to buy directly of friend M. The above letter was probably not intended for publication; and while friend M. thinks he can, on a large scale, raise cauliflower seed at \$15.00 a pound, I presume none of our readers will understand that he proposes to sell a single pound at that price. In regard to the address of the experimental colleges, I think our readers in the different States can give friend M. the addresses he desires.

SELLING EXTRACTED HONEY.

MRS. HARRISON GIVES US SOME OF HER EXPERIENCE.

A BEE-KEEPER of this State wrote to me to know if I could not sell extracted Spanish-needle honey, put up in twenty-gallon kegs. I made inquiries, and the result was something like this: Going into a drugstore, the proprietor said, "Buy a twenty-gallon keg of honey! Oh, my! that would last us twenty years. I would buy twenty pounds." After trying the retail drugstores I went into a large wholesale establishment. In answer to my inquiries the proprietor said, "I had some difficulty in obtaining honey this fall, but I have a supply now. I had honey in barrels offered me at 7 cents per pound; but I did not want it. What I bought is put up in tin cans, like fruit, and will not granulate. I paid from 12 to 14 cents per pound for it."

I kept thinking about that honey that would not granulate, so yesterday I took the street-cars and went to buy a can. There was a placard stuck up, saying, "No goods sold at retail." The clerks said no. I went to the proprietor, and told him I wanted to buy a can of honey; that I had honey at home, but that I wanted to learn how the trade preferred it put up. He put a speaking-tube to his mouth, and soon had a can upon his desk. I paid 45 cents for a three-pound can.

I weighed this can just now, and it weighed 3½ pounds—honest weight, surely. The cover was fastened down with something like plaster of Paris, in lieu of sealing-wax. I dug a little place at one side with the point of a knife, and easily pried it up, with the sealing attached to the cover. I should think the can would hold 4 pounds, as there is more than an inch of space above the honey.

WHAT I FOUND IN THE CAN.

The children had a great deal of curiosity to see what was in the can, as well as myself. The first thing I saw was three legs, and a wing and a leg together, floating, which had once belonged to the busy workers. Perhaps these were put in as an evidence that it was *bee* honey, as the label declared it to be—just as an Irish girl, seeking a situation, showed her hands on being asked if she could make bread. "Sure, here is the dough under me finger-nails from my last baking." I took a saucer and teaspoon, and dipped out some of the honey, and then went out to the honey-house with another saucer and spoon, and brought in what I knew to be basswood honey, while the baby stood by saying, "What are you going to do, mamma? Compare it. I can tell it. That one is brown, and this one is yellow." She was correct. Our basswood is a light

yellow, while that from the can was dark. The can is labeled, "White clover and basswood," and below it says, "It is not possible in all cases to have the contents of each jar entirely from the blossoms named, yet sufficiently so to give distinctly their characteristic flavor."

I saw that this honey was the product of this county, and was puzzled to know how it could be white clover, as it has failed here for two years. The label should have been erased, and "fall flowers" put in its place, as it is thick, well-ripened honey, the product of Spanish needle and other fall flowers. It will injure the trade in honey in cans, if it is not what it purports to be. The honey is liquid on top, but about as thick as hasty pudding below. I will make a selection from a letter before me, with reference to Spanish-needle honey granulating.

"I have been in the bee-business for 15 or 20 years; I keep my honey in barrels and cans for a year, and never had any granulate enough so but that it would run out of a bung-hole whenever the weather was not too cold. Nine-tenths of our honey is Spanish needle, which does not granulate when well ripened; but if extracted too green (if that is the word) it will granulate."

In purchasing this honey I thought I was going to find out how to put up honey so that it would not granulate, which would be a bonanza to bee-keepers, but I failed. The proprietor of the drugstore thought so, but was mistaken. Our basswood honey is liquid up to date, Dec. 7, but the weather has been uncommonly mild. It is in a tin can which has a cover that fits down closely, while a jar standing near containing mixed honey with a cloth tied over it is solid. I infer that honey that is exposed to the air granulates sooner than that which is not; for a pitcher of basswood honey that I kept to pour out of to customers is now solid.

Peoria, Ill.

MRS. L. HARRISON.

Mrs. H., there is something a little singular about that inscription on that can of honey you bought. The first extracted honey we ever put up, nearly twenty years ago, I began labeling "White Clover," "Basswood," etc.; but an old bee-keeper at once commenced finding a good deal of fault. He said that the bees never gather honey entirely from one source, and that I could not possibly furnish a jar of honey that was all of white clover, or all basswood, etc. I admitted the truthfulness of his criticism, and at once added to the label the words you quote—"It is not possible in all cases," etc. As you have given it word for word it is a copy of my label, for it could not have been otherwise. I believe that any honey is much less liable to granulate when left in the hive until it is thoroughly ripened by the bees. I do not know what process they put it through, but they seem to know better than anybody else just what to do to honey to prevent granulation. I believe that it is at least generally true that well-ripened honey from Spanish needle seldom if ever granulates. We have had it a great many times, and kept it where it was so cold you could almost cut it with a knife, but there was no granulation. Of course, every bee-keeper or packer of honey should be very careful to have the label state correctly the contents of each can or jar.

CARRYING HIVES INTO A WINTER REPOSITORY.

DOOLITTLE'S METHOD CRITICISED.

FRIEND ROOT:—I have read with considerable surprise friend Doolittle's article in *GLEANINGS*, Nov. 1, on placing bees in the cellar. My surprise is, that one person should attempt to handle hives at all without assistance. Friend Doolittle must be a modern Samson. The most of us frail mortals certainly prefer help on such occasions. Where I formerly lived, the apiary was 75 or 100 yards from the cellar, and down hill. We used to employ the two strongest men the town afforded, to carry the bees into the cellar, beginning after supper, and finishing about 10 o'clock. We have paid as much as \$3.00 for the job. We used a stretcher, carrying two hives at a time, but it was so laborious that I finally insisted on one hive at a time. It is surprising how much lighter one hive is than two. I suppose figures will not lie, but it certainly seems much more than as light again. My apiary is now near the cellar, and level walking, except the decline of two feet into the cellar, which extends a space of sixteen feet. I have 68 hives. With the aid of a student I took one-half into the cellar the evening of Nov. 21st, and the next evening took in the rest. This comes under the head of light work when managed in this way. The cost was 50 cts.

I wish to say right here, that I can now manage my bees alone, with one-third the expense, bother, and work, that it took the entire family of seven, eight or ten years ago. So much for experience.

Now to return to the subject. By carrying with a stretcher there is no occasion whatever for any jarring, unless it be when the upper hives are tiered in the cellar. How, under the sun, Doolittle can pile up his fourth hive, and no bottom at that, is more than I know. I should very much discourage both methods of carrying in bees, of which he speaks. I like the plan of generous ventilation from below, except that I fear my bees would all come out on me, especially when taken down to carry out in the spring. They are always very uneasy at that time.

I have tried an experiment in the way of wintering this time. I have often thought that the bees were too warm in the cellar, with the heavy airtight mats over them, so this time I took off every thing except the piece of burlap, folded it, and covered only the front half of the frames above. This leaves half the hive exposed to the air, and free access into the cover. It may prove a great mistake, but I do not see why. The cluster can doubtless retain sufficient heat to keep the brood if they have any. I suppose, friend Root, you are well aware that the bee does not believe in ventilation at all (ought to be a railroad conductor), as it will seal every crack in the hive except the one small entrance. I have often thought that, if Nature ever made a mistake, it was in this case with the bee. However, perhaps in the natural wild state of the bee this sealing is quite right.

JOHN F. WHITMORE.

Grinnell, Iowa, Nov. 29, 1888.

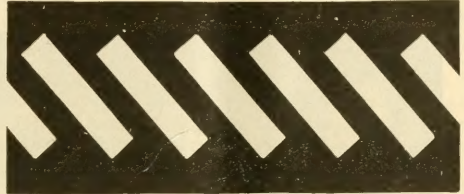
Friend Doolittle is a big man in two senses of the word. We have not a particle of doubt but that he can lift easily the hives, and carry them into the cellar in the manner

he describes. Perhaps friend Miller's method, described on page 962, Dec. 15, 1888, would be more to your liking.

ANOTHER METHOD OF PERFORATING ZINC.

SOME OF ITS ADVANTAGES AND DISADVANTAGES.

FRIEND ROOT:—Inclosed you will find a sample of zinc, such as I have been using in the queen-excluding wood-zinc honey-boards. I believe this plan of perforating is preferable to the two parallel rows of holes as usually made.



SHEPHERD'S PERFORATED ZINC.

It certainly gives more openings than any other plan, and at the same time leaves it sufficiently rigid for all purposes. I will also say, that the work was done on a home-made machine that does the work as per sample, as regards quality; and the cost was but small. M. W. SHEPHERD. Rochester, Ohio.

At first sight, friend Shepherd, we thought your plan of perforation had some very decided advantages; but the more we consider it, the more we are convinced that nothing is gained; but, on the contrary, there is an attendant loss. You have longer perforations, it is true. Those in our zinc are very nearly $\frac{2}{16}$ of an inch long. Yours are $\frac{1}{8}$, making them about an eighth of an inch longer. There may be some advantage in lengthening the openings; but when ordinary perforations are long enough to admit worker bees, why make them any longer? The short perforations might go a great way toward keeping a good long queen from going above, whereas the longer ones might admit her, if she were a slender one. You say your zinc certainly gives more openings to the same amount of space. By laying a strip of your zinc upon a strip of ours, we find that there are more perforations in the same space in ours. If your perforations were the same length, it would make about an equal number of holes.—Another disadvantage, as it seems to us, in your plan, is, that the openings take too much space between the break-joint slats. This would reduce the latter, on $1\frac{1}{2}$ spacing of the frames, down to $\frac{1}{4}$; then if you allow for necessary depth of saw-kerf there will be little solid wood ($\frac{3}{8}$) left.—The perforations can be made about as easily on one plan as on the other. Those having hand-made machines, or machines which make a single perforation at a time, can very easily perforate the zinc in the manner shown, by simply changing the feed.

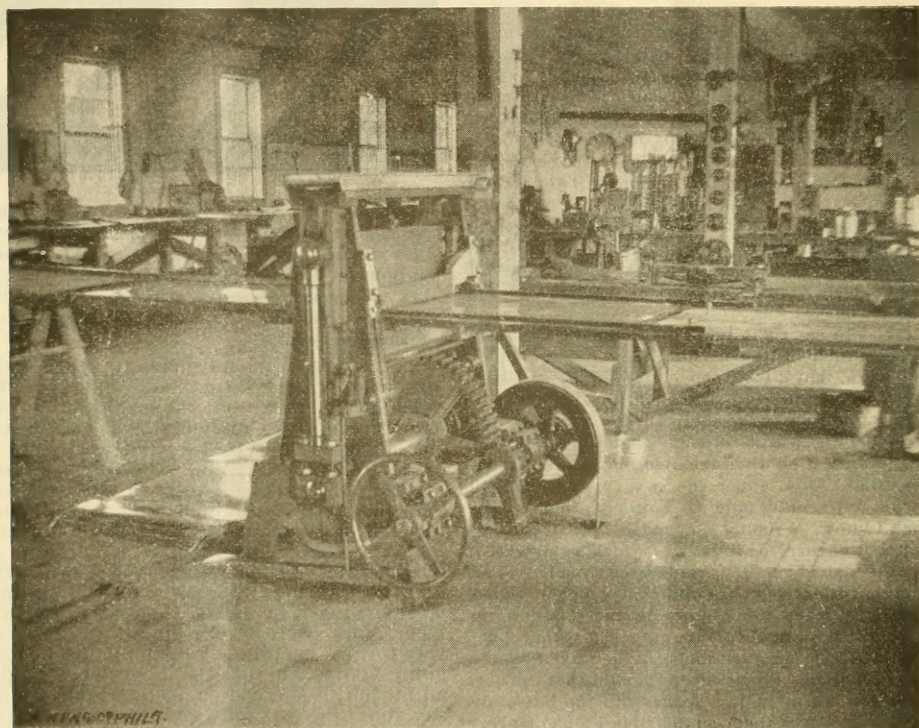
We should be glad to know what Dr. Tucker would have to say upon this method of perforating.

OUR TIN-SHOP.

PERFORATING MACHINE, ETC.

LET'S see. We have given our readers a view of our factory, a glimpse into our saw-room, and one of our office. We now take pleasure in giving you a photographic view of our tinning apartment. The picture is an exact reproduction by the Ives process, and, of course, every thing appears just as it did when photographed, which was one afternoon immediately after shutting down. The view shows perhaps a little over one-half the room. Our tin-shop, including paint-shop, is one spacious apartment 44 x 96

regular intervals. A foot-treadle, shown in the foreground, can be so operated as to throw on or off the power at will. If a punch should happen to drop out, as it did on one occasion, or something else should get out of order, the machine can be instantly stopped, and thus avoid an expensive breakdown. A man stations himself in the rear, picks up a sheet of zinc, 28 x 96 inches, from the floor, and places it on the table. He then slides the two ratchet-bars back far enough to fasten the ends of the zinc to them. A pressure of his foot upon the treadle sets the machine to perforating. At every chunk of the great jaw, 70 little oblong pieces of metal drop down into a



OUR TIN-SHOP, WITH THE ZINC-PERFORATING MACHINE IN THE FOREGROUND.

feet, and in it are something over 40 tinning-machines.

"What do you call this machine just before us?" you ask.

"Why, that is our new zinc-perforating machine." Unfortunately, the engine has just shut down; but a sheet of zinc has been passed half way through. The balance-wheel is connected by a belt to a pulley below. The two sets of cog-wheels, in connection with the connecting-rods, as you will readily perceive, give immense power to the punches, 70 in number, inserted in the sliding carriage. Lying on the front platform, and on either side, are two ratchet-bars. A couple of dogs, operating upon these, cause the zinc (to which the bars are attached) to be fed through the machine at

keg. When several kegs are full they are sold with their contents to junk dealers, who gladly pay us enough for such scrap zinc to fully pay for the time of a man and the machine for perforating the sheets. We are thus enabled to put the price of perforated zinc down to nearly the cost of the raw unperforated metal.

The capacity of the machine is something over a thousand feet of metal per day; and so great has been the call for it that we have sold during the past year about 30 casks of zinc, and our past trade has been such that we feel warranted in believing that we shall sell very nearly double that amount in the near future.

We have given you these facts in order that you may get some idea of the demands

of bee-keepers for perforated metal. Where, a few years ago, we sold our tens of square feet, we now sell our thousands. The question is often asked, "Is the zinc practicable, and is it going to be of value to bee-keepers in working for comb or extracted honey?" If its large sales mean any thing, it would seem that there are some bee-keepers at least who regard it as of great practical utility.

But, what are these other implements which we see? Those are tinner's tools and machines, such as you will find in a first-class well-equipped tinning establishment. Indeed, in order to turn out and supply the demands of bee-keepers for the various articles made of tin, it is necessary to have such an equipment. We find in looking over our books that we sell from 800 to 900 extractors, from 12,000 to 18,000 smokers, from 1200 to 1500 square 60-lb. cans, and every thing else in proportion, such as tin receptacles for holding honey, besides a great variety of other implements of use in apiculture, which can not here be described. Without tinner's and tin-shops, bee-keepers would have to dispense with a great many useful appliances connected with the pursuit.

THE COMMON HOUSE-FLY.

PROF. COOK TELLS US OF THIS FAMILIAR ACQUAINTANCE OF OURS.

MR. CHARLES SITTS, Brosie Corners, New York, requests that I write up the history of the common house-fly, for GLEANINGS. I do not wonder that any one should feel an interest in an insect that forms such an important factor in our domestic affairs as does this insect. It eats our pudding with us, and even out of the same dish. It daintily sips not only of our tea, but of the cream and the sugar that season it. No wonder the great Swede, Linnæus, named it *Musca domestica*. It rooms with us, eats with us, drinks with us, and any one accustomed to take afternoon naps would be glad if it would only sleep with us.

This fly is too well known to need description. It belongs to the order *Diptera*, as it has two wings, suctorial mouth-parts—flies and mosquitoes stab and suck but do not bite—and passes through complete transformations. By this last we mean that the first stage—maggot—is not at all like the succeeding stages of the insect. It belongs to the family *Muscidæ*. Such insects have short antennæ, with a full plume on the last joint, and heavy short bodies. This fly hibernates in winter as a fly. Fortunately, most of them never wake to life in the spring; but enough of them survive to make things lively about August and September. The house-fly lays more than 100 whitish elongated eggs. These are laid in horse manure, on which the maggots feed. The eggs hatch in about twenty-four hours. The larva, or maggot, looks very much and is very much like that of the meat-fly, or blow-fly, with which all are doubtless familiar. When fully grown it is from one-fourth to four-tenths of an inch long, and is about one week in getting its full growth.

This fly, like many others, pupates in its last larval skin. It is rounded and seed-like, as a pupa.

Such pupæ are called puporiums. The pupa state lasts about a week. We now see why these flies become pretty numerous along in dog-days. Each female lays more than one hundred eggs; and the time from egg-laying to maturity is only about two weeks. Most of us have studied geometrical progression. Here we see it illustrated. Suppose one fly commenced "to multiply and replenish the earth" about June 1st. June 15th, if all lived, would give 150. Suppose 75 of these are misses. July 1st would give us, supposing no cruel wasp or other untoward circumstance to interfere, 11,250 flies. Suppose 5625 of these are females. We might have, July 15, 843,750 flies. For fear of bad dreams, I will not calculate what might be by September 15th. Some of us who have some time stopped at third-rate hotels quite understand it. From what I have said, it is easy to see how that a horse-stable near the house is favorable to the fly nuisance. Slops about the wood-shed, of course, attract flies. So the neat tidy housewife is less tormented than one not so blessed with this kinship to godliness.

We provide in three ways against these pestiferous house-flies. First, we have screens to all our windows, and to such doors as are much used, especially the outside doors to kitchen and dining-room. The screens to the kitchen windows are full length, so the windows can be opened either from above or below. We believe in fresh air; and with this arrangement we get it. Secondly, the screen to the pantry window, to each of the dining-room windows, and to one window of each of the other rooms, is hinged at the top to the upper sash. Thus by darkening all the other windows, the flies alight on this hinged screen. We now push the screen quickly out at the bottom, brush rapidly with a palm-leaf fan, and, lo! the flies are all outside the window.

Thirdly, in case the flies get too thick we use pyrethrum, or, better, California pyrethrum, or buhach. Toward night we try to attract all the flies into the kitchen by darkening the other rooms, and placing odorous sweets, exposed in that room. At ten o'clock—bed time—we scatter, by means of a ten-cent bellows, a little of the powder into the room. The next morning the flies are dead, or partially paralyzed, on the kitchen floor, and are swept up and cremated in the kitchen stove before any revive. Mrs. Cook prefers the hinged screens, in the main, as too free use of the pyrethrum does spread a fine dust on the furniture, which is not desirable. A. J. Cook.

Agricultural College, Mich.

Friend Cook, I am exceedingly obliged to Mr. Sitts and yourself. One needs, however, to go to California to find house-flies in perfection. There is not any winter there to kill them, and so they just keep on in that geometrical rate of progression of which you have been speaking—that is, unless the careful housewife makes too vehement a protest, or unless somebody decides that prevention is better than cure, and stops the progression. Now, I want permission to introduce a very disagreeable subject, and I do not know any way to tell it without having some of the friends feel like holding their noses, even if they decide not to do it. I am sure you are right in saying that flies are bred around stables, for at one time our printers used to set type close

to livery-stables, and the flies were not only numerous, but they were mean and low-lived. I think, however, the stables could be managed so as to breed fewer flies. When I was a small boy I sometimes used to neglect cleaning the stables, when father was gone, until the manure became full of maggots. These were probably, as you state it, the larvæ and pupæ of the house-fly. The chickens, however, used to follow me so that there were not so many flies raised after all, if I cleaned the stables in season. I had learned in my childhood, also, that flies came out of manure by some process, for I have seen them crawl out by the hundreds; but I made up my mind at the time that there were different kinds of flies that lived in the manure. Now, then, comes in the place for you to hold your noses. In many out-buildings, where the excavation is very shallow, and the contents of the vault are exposed to sunlight, these same larvæ and pupæ can be seen by the millions, I was going to say; and the flies go straight from these revolting and disagreeable places directly to the kitchen and dining-room; and I have wondered whether they did not carry typhoid fever along with them. Dry dust, peat, or properly arranged out-buildings, will, if I am correct, entirely stop the hatching of flies around these places; and I feel sure that you agree with me, that much might be done to abate the fly nuisance by prevention in the way I have suggested. Now, friend Cook, please tell me if I am not right about it. Our shorthand writer asks if lime, copperas, or some other chemical, will not carry death and destruction to them as well as sweeten the premises. It is a matter of such vital importance, that we can well afford to take a little space for it. Is not prevention better and cheaper than pyrethrum?

THOMAS G. NEWMAN.

BIOGRAPHICAL SKETCH BY DR. C. C. MILLER.

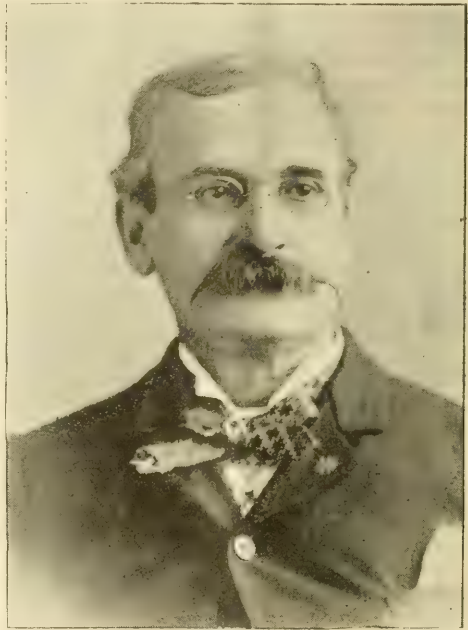
FOR fifteen years the *American Bee Journal* has remained under the management of one man; and, aside from being ably edited, its general make-up and clean typographical appearance impress one strongly, that, somewhere connected with it, is a man who is well up in the art preservative of all arts. The secret of it is, that Thomas Gabriel Newman, its proprietor, is himself a thorough practical printer. Born near Bridgewater, in Southwestern England, Sept. 26, 1833, he was left fatherless at ten years of age, with three older brothers and a sister, the mother being a penniless widow by reason of the father's endorsing for a large sum.

The boys were all put out to work to help support the family. Thomas G. chose the trade of printer and book-binder, serving an apprenticeship of seven years, and learning thoroughly every inch of the business from top to bottom, in both branches.

Early in 1854 he came to Rochester, N. Y., where he had relatives; and before noon of the day of his arrival he secured a permanent situation in the job-room of the *American*. Within two months he took the position of assistant foreman on the

Rochester Democrat, then the leading Republican paper of Western New York. Later on he spent seven years editing and publishing a religious paper, called the "Bible Expositor and Millennial Harbinger," in New York, and published a score or more of theological works, some written by himself. In 1864 he moved it to Illinois, sold out the business, and, for a "rest," took his family to England. Returning in 1869 he located at Cedar Rapids, Iowa, where he published and edited its first daily paper. In 1872 he sold this and removed to Chicago, where he embarked in the business of publishing *The Illustrated Journal*, a literary serial printed in the highest style of the art, and magnificently embellished. The panic of 1873 ruined this luxury, bringing upon him a loss of over \$20,000.

In 1873 a friend introduced him to the Rev. W. F. Clarke, who wanted to dispose of his interest in the *American Bee Journal*, which interest was one-half,



THOMAS G. NEWMAN.

subject to an unpaid contract. This he bought, and afterward the interests of F. Grabbe and Geo. Wagner, thus becoming sole proprietor. For a man not afflicted with the bee-fever, in cold blood to pay more than \$2000 for the simple "good will" of a paper with no printing-office or supplies of any kind, shows an unbounded confidence in the future of bee-journalism. Few men under the same circumstances would have achieved his success. For three years he employed successively as editors, Rev. W. F. Clarke, Mrs. E. S. Tupper, and Dr. C. C. Miller, meanwhile applying himself to the study and practice of bee culture, increasing his apiary from three colonies, purchased for experimental manipulation, to more than 100 colonies in 1879, when he disposed of them because troublesome to surrounding stores. For the past 12 years he has been sole editor, having called to his assistance the

most successful honey-producers of the continent. With a positive dislike for financial transactions, he is fortunate in his son, Alfred H., who has ability in that direction. Besides this son he has two daughters, all married, and five grandchildren.

In 1879 he went to Europe, at his own expense, as American representative to the various bee-keepers' societies, and attended conventions in England, France, Italy, Austria, Germany, etc., and was awarded several gold medals for exhibitions of American apiarian implements. He has been elected an honorary member of 14 bee-keepers' associations, and is also life member of the North American Bee-Keepers' Society (of which he was twice elected president), and treasurer of the Northwestern Bee-Keepers' Association.

He has been twice elected Grand Commander of Illinois of the "American Legion of Honor," and is an officer of some ten different societies in Chicago, social, fraternal, insurance, etc., and spends much time in visiting the sick and relieving the distress of those in fraternal and social relations with him, thus fulfilling the injunctions of the Book of all books, of which he is a diligent student.

In 1885 he was elected the first manager of the National Bee-Keepers' Union, which, under his management, has successfully defended a number of bee-keepers in suits at law brought against them. His successive re-election each year gives evidence of the satisfactory manner in which he has performed the duties of his office.

In no one thing has friend Newman shown the persistence with which he follows up any matter he undertakes, more than in his fight against adulteration, and in connection with it what he so constantly calls the "Wiley lie." Prof. Wiley, with all the weight of his official position under government, perpetrated the "scientific pleasantries" that comb honey was manufactured without the aid of bees. Far and near it was copied by the papers, the professor looking on complacently at the mischief he had wrought, without offering a word to stop its course. Mr. Newman demanded a retraction, with no success, for a long time, but he kept up the warfare, denouncing the falsehood with ever-increasing vigor, using such strong language, and such bitter denunciations that one could hardly withhold sympathy for the poor professor, so mercilessly belabored. But it is probable that nothing short of such vigorous language would have wrung from Prof. W. a tardy denial of the truth of his statement, and a mingled attempt at apology and self-justification.

Notwithstanding the use of vigorous language on the printed page, in his attacks upon that which he deems unjust or false, in personal intercourse friend Newman is always the courteous gentleman. Hardly up to medium height, he is of strong build, and of active temperament. In convention he is a good presiding officer, and an easy speaker, sometimes rising to flights of eloquence on themes which, treated by others, would be but commonplace.

Let us all heartily join in the wish that Thomas G. Newman may long be continued at the helm of the good old *American Bee Journal*.

Marango, Ill., Oct. 20, 1888.

C. C. MILLER.

In addition to the above I will say that my acquaintance with the subject of this sketch began when friend Newman first assumed the editorship of the *American Bee*

Journal. A good many things were in rather bad shape when he took hold of it, if I am correct, and I was forced to admire the courteous and gentlemanly way in which he commenced to put things into shape. Any one who can not get along with friend Newman in business matters, is certainly very hard to please, unless, indeed, it is one of those queer individuals who prefer to have no sort of understanding or settlement either. During our long business acquaintance, very seldom if ever has any thing occurred to prevent a regular settlement of accounts at the end of every thirty days; and in this respect friend Newman is a good model for bee-keepers at large; for my experience seems to indicate that the whole bee-keeping world, as a rule, has a dislike for regular, systematic ways in finances; that is, for having a regular settling-up and perfect understanding *the first of every month*. Things are received that are not satisfactory, perhaps not as ordered; but some of the brethren will wait a year and then complain. It is an old adage, that "two of a trade can never agree;" and I am sorry to say that at one time it seemed to bid fair to be the rule among bee-journals. May God forbid that it should ever be so any more. Friend Newman has always stood ready to go more than half way toward amicable relations toward all the bee-journals published, so far as I know.

CONVENTIONS ET BEE-JOURNALS.

SHOULD THEY AMOUNT TO ONE AND THE SAME THING? IF NOT, WHY NOT?

ON page 933 is an item headed "Conventions versus Bee-Journals." Allow me to change *versus* to *et*, because there is no conflict. "Bee-journals fill a place that conventions can not fill, and it is equally true that conventions fill a place that bee-journals can not fill." Quite correct. "The information then furnished by the bee-journals will have an added interest" (after you've attended a convention), "and you can read very much more understandingly." True also; but with threefold emphasis is it true that you can hear the discussions at a convention understandingly after you have thoroughly read up all that is said in the bee-journals and in the bee-books. I have heard men ask questions in a convention that showed they had a poor understanding of what was going on, which questions would have been readily answered by any one who had done even a small amount of reading beforehand.

Although bee-journals and conventions are different in their uses, and both needed, I do not believe there is any great harm in trying to have a bee-journal approach somewhat in character to a convention. The familiar talk and friendly discussion, getting the views of a number on the same point—such things make the printed page quite a little like meeting our fellows face to face. So, as far as possible, I like to have every bee-journal that arrives seem like a convention; and if we could have one that should have all the advantages of a convention, with only the ordinary cost of the paper, it would be a great gain. But to have a convention modeled after a bee-journal is another

affair altogether; and if a convention *could* be made *just like* a bee-journal, that would be the end of it, for the expense of attendance would rule it out of existence. I am afraid too many conventions try to take the place of the bee-journals, and to just so great an extent lessen their value.

It might be a good thing to find out what are the distinctive characteristics of a convention that give to it its peculiar value, and then try to make the most of them. The warm grasp of the hand as we meet our brethren, and the multiplied opportunities for friendly intercourse in pairs or little groups at various times outside of the regular sessions—these no one will undervalue who has ever had the privilege of enjoying them. No printed page can give us these. If nothing more were to be had at a convention it would pay to go some little distance to attend one; but I suspect the attendance would be rather slim. The attendance at the regular sessions is, after all, that for which we go to a convention. And what is it that gives special value to these regular sessions? The time is chiefly taken up with essays and discussions. Which of these should have the preponderance? Which is more valuable, or do they stand on an equality? Could the time be wholly taken up with one to the exclusion of the other? Undoubtedly a session might be entirely taken up with essays, or entirely with discussions. I have known both kinds. How about having all essays? My good friend Prof. Cook will say that well-matured thoughts are given in an essay—hence more valuable—and he rejoices in the thought that some of his friends are coming over to his views. I wonder if he didn't misunderstand them. Well, I admit that a well-prepared essay from one who is accustomed to putting his thoughts on paper may be more carefully planned, possibly more condensed, than would be an impromptu talk. Even if every member present were capable of this, would it be advisable to have the time all taken up with essays? Where is the difference between essays at a convention and the same essays in a bee-journal? Simply that, in the latter case, you read the essay for yourself, and in the former you listen to some one else reading it aloud. If every essay-writer were a fine reader, it is possible that one might do better to listen to the reading than to read for himself. Even then there are some advantages in the latter case, for often one wants to stop and think over a certain point, or perhaps refer again to something passed over. But it is lamentably true that not one writer in ten can read aloud an essay in an acceptable manner, in which case there is nothing gained by having the convention usurp the place of the bee-journal. In case all were the best of readers, would the advantage of hearing the essays read by good readers balance the extra expense? For, be it remembered, the average cost of attending a convention exceeds many times the cost of all the valuable essays published in one of our best bee-papers in a whole year. So it seems to me we shall do better to keep each one at its best work—the paper publishing essays, and the convention having live discussions.

I know there is more to be said on both sides, and I know that all do not agree with me. I think it possible, too, that some may think it hardly worth while to fill the columns of our journals by discussing such matters. But thousands of dollars are spent every year on conventions, and it surely is

important for us to discuss how we may get the most good out of them.

C. C. MILLER.

Marengo, Ill.

Friend M., I think I agree with you exactly; that is, I shall decide that I agree until somebody suggests something that I have not thought of, and convinces me that I don't; and when we attend conventions, let us keep the matter in mind.

THE COMMON HORN-TAIL.

WHY WE SHOULD SET OUT LINDENS INSTEAD OF MAPLES.

MR. W. FULMEN sends me two specimens of our common horn-tail, *Tremex Columba*, of which he writes: "I found them yesterday busily employed stinging a Norway maple. I suppose they were laying their eggs. The one had his (her, of course) instrument inserted at least half an inch in the hard wood. Please be so kind as to give name and habits, in GLEANINGS."

This common horn-tail is nearly cylindrical, about the size of a lead-pencil, and $1\frac{1}{2}$ inches long.



TREMEX, OR THE COMMON HORN-TAIL.

The figure shows the form nicely. The colors are black, dark brown, and yellowish brown, each shown in the figure by shading. The yellowish brown is lightest; the black, darkest. The name, horn-tail, is significant, as will be seen by the figure. This horn-tail is really an auger, by use of which the insect can bore into hardest wood. This auger reaches on the under side of the abdomen more than half way to the thorax, so it is more than twice as long as it appears when viewed from the back. Thus the insect, when boring, can bear its weight on this auger. It is interesting to see them engaged in this work. As Mr. Fulmen suggests, they bore to lay their eggs. The auger, like the sting of a bee, consists of three pieces—the awl, or central piece, the auger proper, and two side pieces, which are doubtless guides or supports to the awl. The male, of course, has not this auger, and is more yellowish.

This horn-tail lays its eggs in all maples, in oak, birch, hickory, and beech. Harris says it also works on elm and buttonwood. Frequently the insect drives its auger in so deeply that it can not draw it out. I have thus caught them hanging to both beech and maple.

The larva which hatches from the eggs laid by these horn-tails is yellowish white. It is nearly two inches long, when full grown. These grubs often do much harm to our maples, as I mention in the work, "Maple Sugar and the Sugar-Bush." This is an

other reason for planting lindens for shade, instead of maples. We should suppose that such insects, living and feeding in sound hard wood, would be safe from all foes, but this is not so. We have at least two ichneumon flies that bore into trees harboring these horn-tail larvæ, and deposit their eggs in the tissues of the borers. Thus even these borers are not safe, but often become victims to ichneumon parasites. How does the ichneumon fly know where to bore? How can she know that, deep in the hard wood, the borer is working? I surmise that, by walking up the tree, she feels a tremor caused by the gnawing of the larva within. It hardly seems possible that scent can guide her. Odors could hardly penetrate solid wood. A. J. Cook.

Agricultural College, Mich.

But, friend Cook, there is just one thing I want to know about these augers: To make an auger bore, it must rotate; but the machinery in question, however, can not well rotate. How, then, does this auger work? Can't you give us a drawing of it? In our description of bee-stings the matter was lightly touched; and inasmuch as it comes in the line of the way in which bees bore holes with their sting, we think it might be profitable to have it fully described, with illustrations, in a bee-journal.

CAGING QUEENS JUST BEFORE THE HONEY-FLOW.

E. FRANCE SUGGESTS A VERY IMPORTANT MATTER.

THE bee-keeper's summer is past, the harvest is gathered, and what is the result of the season's labor? All who read the bee-papers know that the honey crop was small this year, and smaller last year. I for one don't expect a full crop next year, owing to the dry weather during August and September of this season in our locality. But after all, I individually am thankful for the small crop that we did get, and my faith in the bee-business is still good. I think there are better times coming, when we shall get our reward if we stick to the bees. Perhaps it is a good thing for us to have short crops for one or two years. The old surplus will all be worked off, prices will be kept up, and bee-keepers will be made to understand that they are dependent upon some higher power than ourselves to secure a bountiful harvest. No matter how much skill the apiarist may possess, the bees can not gather honey unless it is supplied for them to gather. The supply is beyond our control. But after all, the skilled apiarist can manage and manipulate his bees so there will be a great difference in results, providing there is a flow of honey at any time during the season, of some sort. With us we have had good honey seasons for a long term of years, and so we were able to take a little over 100 lbs. per colony of surplus until the year 1887, when we got only 12 lbs. per colony. Owing to the dry weather of 1886, the clover was nearly all killed. The year 1887 was a dry year also, but we had some rain in the fall. A great deal of clover came up from seed, but this was not advanced far enough to give us a crop of honey this year, 1888; accordingly all the honey we got last year, 1887, and this year, 1888, came from basswood. Last year we obtained 12 lbs., but not half as much as we should have so-

cured had we managed our bees as we could have done. We had 410 colonies, and obtained 4920 lbs., all from basswood, which was the only thing during the season from which it was possible to obtain any surplus. The same is likewise true of this year.

How could we have done better? I will try to explain the situation a little, and then tell how we could have obtained more honey. First, remember we worked for extracted honey. The year 1886 was a good honey season, and we secured a large crop of clover honey before the dry weather set in. Then the dry weather did not affect the basswood, so we got a big crop of basswood. We let the bees fill up their hives with basswood honey to winter on, as we usually do. After that there was honeydew on which the bees lived until winter, so their combs were loaded with honey. When winter set in they had enough honey to eat for their own use, and to feed their brood until the basswood came the next season. When the basswood opened they had the most of the honey used up, and all the combs were full of brood from top to bottom, and no place to put any honey. All they could do was to fill the cells as fast as the brood hatched. The basswood lasted 12 days, and it took 21 days to hatch out all of the brood. It was positively necessary to leave honey in those combs to winter the bees. Could we safely take out any? Yes, we could extract for a week, and give them time to fill the combs that we emptied; and if we whirled the combs pretty hard, perhaps we could throw out some of the younger brood and give the bees a chance to fill their places with honey. We concluded to do that, and did do it; but as it took a week to go over the bees we got but very little honey the first three or four days. We got out a great deal of young brood, and that gave more room to store honey. Then as the older brood hatched, that gave room to store honey. By the time the basswood flow came to an end, the bees had enough honey stored to winter on, besides the little we took out.

Now, I am aware that I have introduced a strange idea in throwing out brood on purpose to benefit the bees; but under the circumstances it was the best thing we could do, as the hives were crowded full of bees. The combs were full of brood, and no place to store honey. If we had had on hand a large quantity of empty combs, then we could have made good use of them; but we did not have them, and so we had to do the very best we could. How could we have done better, and got more honey? By simply caging the queens ten days before the basswood flow commenced; then the brood would have been about half hatched out by the time the flow commenced, and all would have been hatched by the time the basswood ceased. The queens could then have been liberated. The bees would not have tried to swarm when the queens were caged. All queen-cells should be destroyed, and ten days from that time they should be destroyed again. There would then not be any attempt to swarm until the queens were liberated and some brood started, and not then if the honey-flow were over. Why did we not do it, and secure more honey? We did not think of it in time, as we had never been in the same fix before. But we have been partially in the same boat this year again. We started in this season with 431 colonies, and had to feed about 500 lbs. in the spring to get the bees through to clover, from which they gathered just

about enough to keep them in good breeding condition. We saw that there would be a fair yield of honey from basswood, so, as nearly as we could guess, about ten days before the basswood opened we caged 150 queens, to test our last year's theory. The result was, we got 11,830 lbs. of honey—about 27½ lbs. average, and I should think that ¾ of that honey came from the 150 colonies where the queens were caged. Remember, our average last year was 12 lbs. We came to the conclusion that we should cage queens again to increase our honey crop. We think it is a good thing if it is rightly managed, any year.

The cages we used were made of wire cloth, about 3 inches long, ¾ inch wide, and ¾ thick. One end was plugged with a wooden stopper, ¼ inch long; the other end was just pinched together after the queen was in the cage. The cage containing the queen was hung by a fine wire between two combs in the hive from which she was taken. The bees in the hives feed the queens in the cages. Out of the 150 queens so caged, three died; 147 were alive, and in good laying condition. Some of the cages had eggs in the lower end, ¼ inch deep in the bulk—more than the size of the queen. I don't know whether the bees made any use of the eggs or not, as we kept one or two combs of young brood in the hives, from other colonies; but I know that bees will sometimes take eggs from a caged queen, and raise queens from them. I don't think they will use them to raise workers to any extent. How long did we keep the queens caged? About 20 days—10 days before the basswood opened, and 10 days after. We destroyed all queen-cells when we caged the queens, and again in 10 days we destroyed all queen-cells. After the queens had been liberated about a week we examined all the bees we had, to see if all had laying queens, and found all the queens that had been caged were laying nicely. Now, I don't want it understood that I advocate the caging of queens, except under certain conditions. When one has all the bees he wishes to keep, and wishes to prevent swarming, *then* he should cage the queen—after the colony is very strong and about ready to swarm. Of course, the queen-cells must all be destroyed. We have often caged a few queens, but never as many in one season as we did this last one.

E. FRANCE.

Platteville, Wis., Dec. 15, 1888.

The idea of caging queens at a certain time in order to increase the honey-yield, comb as well as extracted, has been recommended and practiced to some extent for a good many years. Some have claimed that caging queens would put a stop to honey-gathering, or, at least, to a certain extent; but my experience has been that, where the queen is removed entirely, the bees ceased work. Leaving them caged in the hive as you have done, however, would probably make little if any difference with their activity as honey-gatherers. Now, in case there had been an unexpected flow of late fall honey, might not your experiment have resulted in a big loss? As our business has been for years selling bees by the pound, it has been a hard matter for us to accept the idea of repressing brood-rearing in any way; but as you state it, it seems to me very likely there might be a positive gain in the amount of honey secured, and a positive

saving in regard to the amount of sugar that must be bought for winter. We should be glad to hear of the experiments of others in this matter.

RAMBLE NO. 10 CONTINUED.

A NOVEL METHOD OF PEDDLING HONEY.

UNCLE JOHN runs his colonies for the production of comb honey. His son Cyrus, not having much love for the busy bees, attends to the farm, and makes gardening a specialty. The products of the garden and the apiary find ready sale at hotels and to the boarders themselves; for about 20 miles from the head of the lake, nearly every point and island has a hotel or several cottages upon it. For instance, Ripley's Point has a hotel—Horicon Lodge—and a dozen cottages. During the camping season these must be supplied with vegetables, etc. Mr. Cyrus A. supplied a few of these resorts, at first with a row-boat; but seeing an opening for a little expansion in the business he fitted up a boat with a kerosene-engine. This pretty little craft will carry 17 persons, or over a ton of supplies. Every Wednesday and Saturday the boat is loaded with a miscellaneous cargo of potatoes, onions, celery, and every thing from the garden; and last, but not least, a few crates of honey. The voyage is then made from point to point, and the entire day is spent in disposing of the cargo.



PEDDLING HONEY WITH A STEAMER.

Comb honey finds ready sale at 16 cts. per lb. Mr. A. was selling his honey off nicely at 15 and 16 cts., when, upon his next trip, he found the market demoralized, and the bottom knocked clean out by an outsider running in a load of honey and selling it for 10 or 12 cents per lb. In consequence he is strongly in favor of co-operation, or the buying of all of these stray cheap lots, or, what would be better, the purchase of their entire stock of bees.

Extracted honey can not be sold at any price, owing to suspicion of adulteration. Even comb honey in regularly filled sections is looked upon with suspicion; and city people, before purchasing, want to prod a jack-knife into the center of it to test it.

While extracted honey can not be sold, there is a call for maple syrup, and it will be purchased and greedily eaten, and hardly a word be said about its purity; and we all know that maple syrup is adulterated as much if not more than honey. Is honey held more in suspicion because the busy bee and the production of honey calls forth sensational lies, and syrup free from it, because the noble maple can not be so much lied about? Another question that is beyond my solving is this: Why will people use some articles of diet that are grossly adulterated, and know it, and refuse articles like honey, against which they have only a remote sus-

picion? The little steamer is, however, on its mission every summer, and we hope it will exert an educating influence on all city people who purchase what it pleases them to term wild honey?

On Tuesday our visit drew to a close. We cast lingering glances at old Buck Mountain, with its huckleberry paradise; at Shelving Rock, with its rattlesnake dens; at Tongue Mountain, noted for deer and the deer-slayers; at the placid waters into whose pure depths the eye can penetrate 20 or 30 feet; the islands, fairylike in their beauty; the boats, with their suggestions of pleasure and exercise; we could scarcely tear ourselves away from so many attractions, and the Rambler would willingly rest from his wanderings, and build a log hut under the sheltering trees, and, 'rusee like, spend his days in hunting and fishing.

Our last repast in Camp Andrews was a picked-up dinner. The most prominent object on the table was the doctor's medicine-box, with 500 bottles, more or less. It was a terrible-looking instrument of destruction.

The only accident of note was a thrilling adventure of Mr. Lockhart, who rushed in one dark night, averring that he had been knocked down by a burglar. We prospected with lanterns, and found he had tumbled over a big boulder. It is a mystery how people's imagination will run away with them. Another was a skillful star scene, indulged in by the Rambler. He tried, and succeeded in sitting down in the lake.

The pleasures of the visit will be long remembered; and the many kind favors bestowed on the Rambler by his fellow-campers and members of the family, I trust can some time be returned; and that other bee-keepers can some time enjoy a week at Lake George is the earnest wish of the RAMBLER.

LOT'S WIFE.

DEACON SMITH DISCOURSES ON THE ELEMENTS NECESSARY TO SUCCESS IN BUSINESS.

DEACON SMITH was on the winning side in politics this year. He is therefore more loquacious than ever, and more genial, if that were possible. He has spent several evenings at our house since election. He brings "Mirandy," and Mirandy brings her knitting-work. Our apple-barrel holds out yet, and the bee-journals have not lost their interest, although truth compels me to state that they were only secondary during the heated campaign.

The deacon's teeth are a little poor; but our Wealthies are in their prime now, and he is obliged to acknowledge that they are "most as good as the Greenings of York State."

The last evening he spent here, the deacon got to talking about the elements necessary to success in business.

"Now, there was Lot's wife," said he; "what a shining example she was of how not to do it!—not that I blame the poor tired woman for looking back upon the scenes of her childhood. Anybody could have forgiven her for that. But Moses was too busy looking after the wayward children of Israel to give us her full history, and you see she wasn't worthy of a page or two in the Biblical record. He only mentions her, as the preacher does the text, to give point to her instability of character. Did you

ever think of it? She hadn't even a name in the book. There's Sarah and Rebekah and Esther and Ruth, and a host of other noble women who have blessed the earth ever since they lived. But she was Lot's wife—that's all. If she had been a woman of character, do you think she would have been consigned to everlasting nothingness in that kind of style? Even Jezebel got more distinction than that.

"Just imagine what a rattling there would be among the dry bones if Mirandy should die, and I should put up a respectable monument to her memory with this inscription: 'The late Mrs. Smith,' instead of saying, '*Hic jacet* (here lie) the mortal remains of Amelia Mirandy Sunnyweather, the late consort and worthy helpmeet of Uriah Smith, a woman who never turned her back on a duty unperformed.'

"If you will read between the lines you will discover that Lot's wife was one of those weak-minded, changeable persons who never have an object in life, and are blown about by every wind of doctrine. When Lot started from Sodom she thought she loved him above every thing else, and she'd share her fortunes with him. But when she got tired, and had blistered her feet on the sand, she thought, 'What a fool Lot was to believe what those men told him! I guess I'll go back.' So she turned back to the luxurious city she had left, thinking perhaps that her husband would soon follow suit. You know the rest.

"Now, that's the trouble with a great many men in this world. They don't know what they are here for. They haven't any purpose. Like a lost dog they will follow the first emigrant wagon that comes along, if the driver only whistles.

"Perhaps they are farming. Things haven't gone first rate. The price of hogs has gone down, and cholera specific has gone up. Along comes a white sail with the magic word 'protected wool' on. The hogs are sold, given away, or run into the sea. They are only swine, any way. But sheep are high. By the time he gets fairly started—has learned how to keep the wolves off by day and the dogs by night, how to save the lambs in spring and the old ones from foot-rot in the summer, he discovers that Texas and Australia can raise wool cheaper than he can, and that sheep-raising is not so profitable as he thought. So he sells his sheep at a sacrifice, and invests in booming cattle. It's the same old story—buying at the top and selling at bottom prices. Old age creeps on apace. By the time he has run the gamut of the industries he is ready to vote with Solomon that variety and vexation of spirit is the common experience of the farmer; whereas, if he had stuck to some one thing he might have compelled success.

"There's neighbor Jones. He bought a lot of bees a few years ago when bees were high and honey ditto. He thought that was the highway to wealth and happiness. He put a good deal of money into the business—a good deal more than there was any use of. He didn't know any more about bees than a sand-hill crane does about astronomy. He only soared among the clouds. The first winter he lost heavily. The next summer his profits were so fine he couldn't see them. Last year wasn't much better, but he got a good deal of experience. But he got disgusted with them, and put them all up at auction. I bought the whole outfit for a song. Now, I know there isn't money in bees every year.

They don't make honey. It's got to be in the flowers, or the bees can't get it out, but I'm bound to stick till the Lord sends the early and latter rain, according to promise. It's the only thing to do. You know what Poor Richard used to say: 'A rolling stone gathers no moss.' After a man has got every thing fixed to keep bees, it's the foolishlest kind of folly for him to surrender and admit he is licked because there happens to be one or two bad seasons. There's nothing in this world that I know of that is always on the high road to prosperity without work, and sometimes there's a deal of waiting too." Reported by— EUGENE SECOR.

Friend Secor, you are lucky in having Deacon Smith for a neighbor. Don't mind the apples. When he gets a going, just give him plenty of rope, especially if he exhibits as much wisdom as he has in the above. While in California I was greatly impressed with the very idea the Deacon has brought out. When 200 lbs. or more of nice honey was obtained per colony, a few years ago, a great many started in the business. Some of them have held on to the bees for a couple of years; but at the present time a great many are deserting their bees, or are offering to sell them for a mere "song," as you express it. Now, I do not mean that one should keep on devoting his whole time, and making outlays, while the seasons are so unpropitious that there is little or no income. I believe it is prudent to stop outlays, and let the bees stand still while there is nothing in particular to be done with them, keeping a careful watch, of course, that they do not get out of stores and so starve to death. It would be very strange indeed if no more crops of honey were to be secured, such as we had five or ten years ago. If we talk with men in most kinds of business, especially those who raise crops, you will find a good deal of the same state of affairs. It is terribly expensive to learn a trade, and rig up for the profitable working of any kind of business; and he who abandons, as soon as or shortly after he has got ready for business, must expect to do it at a great sacrifice. Work at something else if you choose, while your regular business can not be followed; but do not let things go to ruin, or swap them off hastily.

A GOOD QUESTION.

DO BEES BUILD HEAVIER COMBS AT ONE TIME THAN AT ANOTHER?

AS C. C. Miller had made some observations on the subject as above, we sent the following to him:

Friend Root:—On page 803, you and J. A. Golden fail to understand why bees build heavier comb at some times than at others. I have noticed for several years, that, during a rushing flow of honey at any season, and from whatever source, whether clover, buckwheat, or aster, the comb is invariably thin and light; but when honey comes slowly, the combs are heavier. White clover was almost a total failure here, but buckwheat and asters yielded fairly well. BURDETT HASSETT.

Howard Center, Howard Co., Iowa.

Mr. Miller replies as follows:

I do not know that it is of practical importance to know why and when bees build heavier or lighter comb; still, it is a matter of interest, and a practical bearing may attach to a subject, although such practical bearing may not appear on the surface. I have some doubts as to the cooler weather of fall making bees slower about drawing out wax, thus making the comb heavier. Bees keep up the heat in the cluster, summer or fall; and if the wax is soft enough to be worked, I suspect they will work it thin one time as well as another. But it is not unreasonable to suppose that, like the human family, bees will be more lavish in the use of any article which is plentiful. It is not likely that the secretion of wax is in exact proportion to the amount of nectar gathered daily. Suppose a heavy flood of honey is being gathered. The bees will secrete wax enough to take care of it, and this secretion is a matter of time. It can not be started or stopped in a minute. When they stop gathering honey at night, the manufacture of wax keeps right on through the night; and if a heavy rain should occupy all the afternoon it is likely the same amount of wax will be secreted as if the bees worked in the field all day. And I see no reason, if the bees work all day in the fields, why there should not be just as much wax secreted, whether the field allows a bee to gather a load in 24 or 40 minutes. In other words, there should be no difference in the wax production, whether the bees store two pounds a day or twice as much. But if the wax is secreted, it will be used in some way, and I suspect that bees are likely to build thicker combs if they have a double supply of wax. If this be the case they might be expected to make thicker cell-walls when the harvest begins to wane.

Thinking this matter over last evening I said to myself, "If your theory is true, facts ought to sustain it. Last summer the yield was very slow, and you ought to find very heavy comb." So I got a section of honey out of the cupboard to examine. Sure enough, it appeared to me the cell-walls looked thick; but then, I had no other comb to compare it with. I cut out a cubic inch, as nearly as I could estimate it, and chewed it. The resulting wax I rolled into a round ball, and it measured just about half an inch in diameter. That seemed to me like a good bit of wax; but, as before, I had nothing to compare with. Friend Root, try a cubic inch of honey, perhaps of two or more different samples, and tell us how much wax you get from it. Here is another fact that is confirmatory, so far as it goes:

Last summer the bees made more trouble than I remember ever before, in making bits of white comb where not wanted. In a good many instances they made little sheets of wax arise perpendicularly from the separators, as if trying to increase the width of the separator. They also plugged up crevices as if with propolis, only they used pure white wax. So far as I could judge by looking on, the bees were busy every day; but a total crop of less than a ton from 135 colonies shows that the daily yield must have been small, requiring little wax, and allowing plenty for thick cell-walls and an overplus to be used as bee-glue. By the way, in every lot of bee-glue I think more or less wax will be found on melting.

SIZE OF APIARIES.

The item on page 933, with its comments, "Advantages of Small Apiaries," reminds me that it is not safe to base general conclusions on one or two data. A small apiary of 12 colonies gave almost enough

surplus to supply the deficiency of" a larger apiary of 60 or 70 colonies. Now, friend Weckesser, the small apiary may have given the surplus just because of the few colonies; but the facts you state by no means prove it. The past summer my Wilson apiary had about three times as many colonies as the Belden apiary; but the *larger* apiary "gave almost enough surplus to supply the deficiency of" the smaller. But that doesn't prove that the larger number made the yield per colony greater. The Wilson apiary probably had a better field to work on, and probably your 12 colonies had a better field than the home apiary. I do think, however, that in general a small apiary will do better than a large one, just because there will be times during the season when the harvest is so light that even a few colonies overstock the locality. But the difference may be so little that I think in general I would not start an out-apiary till my number exceeded 100. So I agree with the comments.

Marengo, Ill.

C. C. MILLER.

Friend Miller, your explanation seems to be the more reasonable one. It is a fact, is it not, that bees do at times secrete more wax than they can profitably use, and that these scales are sometimes found on the bottom-board? Friend Hutchinson avers that, in consequence, too much foundation is used, and that this surplus of wax scales goes to waste. According to your request, we tried two or three samples of honey. As the flow of nectar in California is considered to be very rapid, it is reasonable to suppose that California combs would be lighter than combs to hold an equal capacity made here in the East. We accordingly selected a section of California honey well filled out, and of snowy whiteness. From this we took two cubes of honey. From each the resultant wax made a sphere only a *quarter* of an inch in diameter. Of course, this wax was pressed together into a solid ball. We next selected a section of honey which had been filled out during the last season in our own locality, when the yield of nectar daily was very small. This section was travel-stained, and there was a number of cells not capped over. From this we took a cube of honey, chewed it, and obtained a wax ball *half an inch in diameter*. As will be seen, the diameter of the latter was twice that of one of those from the California honey. Therefore the *volume* of wax would be just about eight times as much. From this it might be argued that bees will use *eight* times as much wax in comb building during a *slow* yield as they will in a *rapid* yield. These proportions may not and probably will not hold true in all cases; but as the experiment can be so easily tested, we hope our readers who are interested in the matter will do so and report the result, noting carefully whether the nectar was coming in rapidly or slowly. Now, friend M., you start out by saying that you do not know that there is any practical importance in this matter; but you intimate that a practical bearing *may* attach to it. Well, it *may* be this: When honey is coming in *very rapidly*, the bees need full sheets of foundation; when it is coming in *slowly*, narrow starters will answer just as well and perhaps better. If this be true, may it not be possible to save foundation, and, con-

sequently, money? Again, if bees do at times build heavier combs than at others, may it not explain why there is sometimes present the objectionable "fishbone," and that at other times it can not be detected?

HEADS OF GRAIN FROM DIFFERENT FIELDS.

CARRYING BEES INTO THE CELLAR; DOOLITTLE'S AND ROOT'S INSTRUCTIONS OBEYED.

I WISH to thank you and G. M. Doolittle for that article in Nov. 1st GLEANINGS, in reply to my questions on placing bees in the cellar. GLEANINGS arrived here about four o'clock, Nov. 7; and after reading the article referred to I decided to set the bees in at once, as it was looking like rain, the weather previous having been remarkably fine. There were 82 in all, and we carried them in, some before dark and some after, and found no difference. In your remarks you seem to think the bees would be more apt to get out of the hives when the bottoms are removed. Now, if you mean while carrying them, you are wrong; as the bees seem to get confused when they run down and can't find their floor, and very few will fly out of their hives. If you mean that more bees will get out of the hives in the cellar, you are right; but I think we want them to, as, when a bee becomes so weak as to fall from the cluster, it is better out of the hive, as they will sometimes pile up in the bottom and make a very bad smell. I did not place my bees as Doolittle does, as I had not room. I simply placed two scantling about a foot from the ground, and set a row of hives on them, then two more, and so on. I think it would be a good idea to have the scantling supported independently of the hives, so any hive could be removed if necessary.

Alvinston, Ont., Can.

W. E. MORRISON.

SOD HOUSES FOR WINTERING BEES, AND FOR RAISING PLANTS AND CARP.

Please send me some Grand Rapids lettuce. I have a greenhouse, and am raising plants. I have built a water-tank 5 feet deep, 8 feet wide, 32 feet long, in which I have about 400 carp. I have three-fourths of the tank covered with floor, with a good sod house built over it. I have a pipe running into it, with a pipe for the water to escape into a hatching-pond about four rods square. My carp are doing well, and so are my bees. You remember I wrote to you last winter about keeping my bees in a sod house. Well, last spring I thought I would experiment a little, so I built a sod wall, and made spaces in the wall, facing the south, to set the hives in; then I took two boards, a little longer than the spaces, and took old barrel-staves and nailed to the boards for cages. I am well satisfied with the arrangement so far. When I wish to work with a hive I can just remove the cover, as each has a separate one. I have 39 colonies in hives, and one I took from the woods, from a hollow tree.

R. F. LOOMIS.

Indianola, Neb., Nov. 21, 1888.

THE COTTON-TREE OF THE SOUTH A PRODUCER OF HONEY.

IN GLEANINGS, June 15, a man in Texas asked you some questions. Among others was this one: "Is the cotton tree good for honey? You did not know,

but you stated that the cottonwood-tree of the North and West was not a honey-producing tree. The name cotton-tree is a local, or common name only. The proper, or scientific name, is *Paulownia*. It grows as large, or larger, than a big apple-tree, with much the same form. It blooms early in the spring, before any leaves appear, and is remarkably fragrant. One large tree will scent or perfume half a dozen town lots. It is raised principally on account of its strong perfume and dense shade. Its flower resembles a purple Jimson (Jamestown) weed, except it is only half as long. In regard to its being a good honey-producing tree, I can't say any thing further than this: Bees work on it just as fast as they do on an apple-tree in Ohio when in full bloom. But few people here know its right name. I asked a great many before I found out, and Dr. Brantley, one of your subscribers, gave me the true name. The doctor is well posted on nearly every thing, and is one of the best conversationalists I ever met.

Atlanta, Ga., Dec. 15, 1888.

JOHN BARFORD.

WATER IN A BEE-CELLAR, AND HOW IT MAY BE SUPPLIED.

I winter most of my bees in the cellar, and generally with very good success. I have just built a cellar especially for the purpose, in which 151 colonies are wintering. They are exceedingly quiet, which I consider the best proof of perfect wintering in a cellar. Having had positive proof of the benefits of water in the cellar several years since, I wanted a living spring in my new cellar; and as we found none while digging it I managed to get a cheap artificial one by digging out at one corner, thus. The small room, or projection to the cellar, takes in my pump-pipe (it is a drive-well iron pump). The supply of water for the cellar is simply the waste which spurts out of the vent-hole in the pipe; and as this well furnishes all the water used by two families, besides several head of stock, there is a large quantity of water which passes out of the pipe into the cellar. The cellar is under a part of the dwelling-house, and the pump is at one end of a porch. It has a stone wall full depth, and is lathed and plastered overhead. The surplus water passes off through a drain. I expect to utilize the little room for milk and butter in warm weather, letting the water pass around the milk-dishes, etc.

O. H. TOWNSEND.

Alamo, Mich., Dec. 11, 1888.

SMALL SECTIONS, AND HOW TO MAKE THEM OUT OF WOOD SEPARATORS.

Having read of the Rambler's troubles with the Harmer 2-oz. section, I will tell him, and others who may be interested, how I made 200 or 300 last spring.

Having bought of you a lot of wood separators I took some of them, cut them into lengths of $7\frac{1}{4}$ inches, and then cut the lengths into strips $\frac{3}{4}$ inch wide, and marked them off like this.



Now take a sharp-pointed knife and cut the cross-lines partly through and you can fold them very easily, and they will fit into the frames all right if cut accurately. In folding I put a drop of glue where the ends meet; but perhaps a bit of well-gummed paper would be better; it certainly would not be so sticky to handle as glue is. I was not very successful in getting them filled, but I think the

trouble mostly was due to there being no honey to gather, as I got but 300 lbs. of comb, and no extracted honey this year. I will try the little sections again this coming summer.

O. G. JOSEPHANS.

Owosso, Mich., Dec. 7, 1888.

HONEY GRANULATING.

I read in GLEANINGS somewhere of the spraying of honey in extracting causing, or at least hastening, granulation, in something the way that stirring sugar syrup when making taffy will cause it to granulate. When the stirring is slight, the granulations may not commence until the taffy is sold, and sometimes several hours afterward. I had practical proof of this fact this fall. When taking off my honey I cut out the unsalable sections and filled a jar with them, to sell in bulk to home customers. After emptying the jar a few days ago, I found the droppings not granulated in the least, while honey of the same kind, extracted at the same time that this was cut out, and though in tight cans, and capped up, was granulated so much it could not be poured out without warming; and some in an open lard-jar was solid, while the droppings from the uncappings in another jar were granulated but little; this was all late honey, mainly from Spanish needle, which does not granulate so readily as clover honey.

B. A. RAPP.

Chillicothe, Mo., Dec. 8, 1888.

FOUL BROOD IN NEW ZEALAND.

The Langstroth hive is the one in use in New Zealand by all advanced bee-keepers, and is found quite sufficient protection without chaff packing, to winter on summer stands, owing to the mildness of our climate. I noticed a report in a late issue of GLEANINGS (July, I think), that foul brood is very troublesome in the North Island. This I believe is correct, but it is not so prevalent in the South; indeed, we much doubt if the true foul brood exists here at all. It is a very mild form of the disease with which we are acquainted, and readily yields to proper treatment.

R. E. D'O'LY.

Dunedin, N. Z., Nov. 1, 1888.

ARE QUEENS INJURED BY SHIPPING?

I read with no little interest friend Doolittle's article on page 749. It is just so near my own experience in handling and shipping queens, that I am fully persuaded, from practical trial and application of many of the circumstances mentioned therein, that friend Doolittle is *nearly correct*, while our friend Chas. Dadant, on page 846, is very much in error, I am sorry to say. It would be furthering my interest very much if I were able to sustain his assertion: "The shipment, by mail or express, does not deteriorate the laying of a queen, * * * even when she is taken from a full colony during the height of the laying season." Nearly every *prolific* queen that I have ever sent out from a full colony in the height of the laying season has been more or less a failure, ever afterward, as a layer. Why this was so, I am not able to say, though it may be caused in a variety of ways. A queen, when once partly starved, chilled, or overheated, is never worth any thing as a laying queen, though she may lay a few eggs, and live a year or two. A queen taken from a full colony in the laying season, and full of eggs, may be damaged by the difference in the temperature while in that state, as much as by the stoppage of laying in the regular order. No one, I hope, will say that it does not damage man to eat at ir-

regular intervals. Which of the two is the more delicately constituted, and liable to injury by a slight diversion from regular order of life—the laying queen or the human stomach? I want to emphasize the fact that a queen that is but a spare layer is just as good to breed from, and better than one that is an excessive layer. And, again, that queens taken from a nucleus hive are more profitable to the purchaser than those taken from a full colony in the height of her laying season.

ABBOTT L. SWINSON.

Goldsboro, N. C., Dec. 4, 1888.

With the large number of queens we annually send out by mail, it is strange that we have not noticed, or, rather, received, many complaints of such deterioration in said queens. There may be an occasional instance that seems to point that way; but that such cases may be frequent is not a matter of our observation. If you and friend Doolittle are correct (and you may be to a certain extent), why is it that we have never heard more frequently of such failure of egg-laying before? Now, it is just possible that your last sentence explains the difference in our experiences. Although our cells are raised in full colonies, the queens, as a rule, are reared in nuclei.

BALLING QUEENS; REFUSING TO ACCEPT CELLS.

Last spring, a year ago, I bought a queen from Dr. Brown, Augusta, Ga. She proved to be a fine layer, and purely mated. Last month I noticed the bees balling her. I smoked them well and closed the hive. Now they have a black queen. How did they get her, and why did they destroy their queen? In Italianizing I had colonies which would not receive queen-cells nor build one when given eggs, although they had been queenless for 10 and 12 days. Is not this unusual? In one of my colonies I often hear a noise resembling the growling of an opossum. You can hear it some 12 or 15 paces off, yet I can find nothing wrong. What do you suppose causes it? D. C. MCCAMPBELL.

Harmontown, Miss., Nov. 27, 1888.

Friend M., it is hard to assign a reason why bees will at times ball a good fertile queen. Sometimes they will attack one as soon as the hive is opened—indeed, the disturbance is what causes them to behave so unseemly. As a usual thing, under such circumstances, if the hive be closed immediately the bees will let the queen alone, though it is our practice to blow a little smoke in at the entrance. In the instance you give, the balling resulted in the death of the queen; and her successor, it seems, it was a black one. At certain seasons of the year it is difficult to get colonies to accept cells given them; but if the bees are actually queenless, beyond any question, we feel pretty sure they will accept eggs and raise cells. We should incline to the opinion that the colony you mention had some sort of a queen, probably a fertile worker. The only thing to do is to scatter the brood and frames throughout the apiary. When a colony apparently queenless refuses to raise cells we generally come to the conclusion that they have fertile workers, and a careful scrutiny of the combs generally confirms this conclusion. — Unfortunately, we don't know what an "opossum's growl" sounds

like; we therefore can form no conception of what that peculiar noise is which you notice among your bees. During the honey-flow there is a low hum that can be distinctly heard several feet away.

NOTES AND QUERIES.

STATISTICS.

ALLOW me to say that I am highly pleased with the Honey Statistics in GLEANINGS. I think that that alone should be worth a dollar per annum to many bee-keepers. I see by the latest statistics that friends Nebel & Son, of High Hill, Mo., are away ahead of us other fellows here in Missouri on the average crop of honey secured this season, and that with a large number of colonies, if I am not mistaken. How is it, friends, have you a better location, or do you know better how to manage the bees? S. E. MILLER.

Bluffton, Mo.

BEES AND FRUIT.

I notice a complaint in a recent number of GLEANINGS, regarding bees working on raspberries. I have had the same trouble, the bees being so troublesome as to almost drive away pickers.

Nichols, Conn., Dec. 13, 1888. H. P. NICHOLS.

A QUESTION FOR OUR "SALT-WATER" READERS.

What is the best paint for bee-hives in a salt-water locality—pure lead, zinc, lead and zinc, or some other kind of paint? A. B. MASON.

Auburndale, O.

[Will some of our readers located near salt water please answer? But why should proximity to salt water make any difference?]

APPLE-TREE SILK-MOTH.

Prof. Cook:—I send you by mail for identification, the pupa of some large insect found adhering to the limb of a plum-tree. Please report through GLEANINGS. W. D. ALLEN.

Kosse, Tex., Dec. 17, 1888.

Prof. Cook replies:

This fine large cocoon contains the apparently healthy chrysalis of our apple-tree silk-moth, *Platysamia Cecropia*. Next June there will come from this a large beautiful brown moth. A. J. COOK.

FEEDING EXTRACTED HONEY.

I wish to feed my bees honey for winter stores. How shall I do so, so as to have it not granulate in the combs? R. H. SHIPMAN.

Cannington, Ont.

[Feeding back extracted honey is rather unsatisfactory. It is difficult to prevent granulation in all cases. At the price honey is now, we would not think of feeding bees with it. By all means, feed sugar syrup well cooked. It makes a much better food, and if you make the syrup rightly you will have no trouble about its crystallization.]

HUTCHINSON'S PLAN ON EMPTY FRAMES; HEDDON'S NON-SWARMING PLAN.

I have tried Hutchinson's plan of hiving on empty frames, and failed. I have tried Doolittle's plan of hiving in contracted brood-chambers, filled with empty combs, combined with Heddon's plan to prevent after-swarms, by hiving on the old stand and removing old hive the 7th or 8th day, and I believe it superior to any non-swarming plan I have ever heard of for surplus honey. BENJ. A. RAPP.

Chillicothe, Mo., Nov. 9, 1888.

SOMETHING FROM THE AFRICA MISSION.

GLEANINGS has come to this mission regularly for two years. Native honey abounds in all localities; in nearly every tree you see large bark boxes put there by the natives, and many of them are full of honey. From 75 to 100 tons of wax is shipped from this port every year to Europe.

E. H. RICHARDS.

Mongwe, Inhambane, E. Africa, Oct. 20, 1888.

JAPANESE BUCKWHEAT A SUCCESS.

I got 2 lbs. from you last spring; sowed it on 20 rods of good ground. I harvested $7\frac{1}{2}$ bushels of nice buckwheat. Bees worked on it the same as on other. They worked sparingly on goldenrod; they worked very industriously on pridedweed. You could see from 4 to 12 on one head. They seemed to be crazy for it when in bloom. I suppose it is one of the goldenrod family. Bees got honey enough to winter on, and some swarms gave considerable surplus, mostly from basswood.

Chardon, O., Dec. 10, 1888.

W. MCBRIDE.

REPORTS ENCOURAGING.

FROM 36 TO 60, AND \$250 WORTH OF HONEY, SOLD PEDDLING.

THE first of May found me with 36 colonies, some very good and some very poor, 8 of which number were so weak that it took them all the season before they got built up to good swarms. From the 28, good and fair, I sold honey, both comb and extracted, to the amount of \$250. I have a little over a barrel left on hand now. I increased them to 60 good swarms. They are in good shape, with plenty of honey to last them till fruit blossoms.

PEDDLING HONEY A SUCCESS.

I sold most of my honey in my home market. I had some friends in a little town 8 miles from my place, and my wife and I were going to see them. I told her I would take some honey along, and may be we could dispose of some. We took about 100 lbs., both of comb and extracted. It went like hot cakes; and the consequence was, I made 6 trips and sold \$140 worth in that town. M. M. RICE.

Boscobel, Wis.

FROM 8 TO 16, AND PLENTY OF HONEY.

Last spring I had 8 colonies, and increased, by dividing, to 16. I had plenty of nice section honey to supply my table. I have raised and introduced Italian queens into each colony.

D. C. MCCAMPBELL.

Harmontown, Miss., Nov. 27, 1888.

FROM 50 TO 80, AND 800 LBS. OF HONEY.

I commenced in the spring with 50 colonies of bees, and they increased to 80. I got 800 lbs. of honey. I know the most of them had each nearly 100 lbs. left in the hives to winter on, because for the one that made comb honey I left all in the lower box, from 8 to 12 frames, almost solid full of honey. I clip all of my queens, and then let them swarm. I think this is much better.

Seneca, Kan., Dec. 5, 1888.

M. A. WILKINS.

FROM 30 TO 40, AND 1200 LBS. OF HONEY.

I began the season with 30 swarms—25 fair and 5 weak. I increased to 40, and took a little over 1200 lbs. of comb honey; 4 colonies did not give a

pound. I sold at from 14 to 18 cts. per lb., in Detroit. I sell all my unfinished sections that weigh not less than 6 oz., and so on up to 12 oz., some being wholly unsealed, and I find ready sale at from 8 to 12 cts. per lb. I think it better than keeping them over.

BENJ. PASSAGE.

Stark, Mich., Dec. 14, 1888.

FROM 30 TO 70, AND 1000 LBS. OF HONEY; ARTIFICIAL PASTURAGE; ALSIKE (CLOVER FOR BEES AND STOCK).

The honey-flow in this locality has been bountiful the past summer, and those who had their dish right side up caught the golden harvest. My bees did as well as could be expected, considering the amount of care given them. From 30 colonies, spring count, I received about 1000 lbs. of honey in 1-lb. sections, and increased to 70 colonies; and I think if I had hived every swarm that issued I should have had 100 colonies at the close of the honey-flow. One colony of Italians first swarmed out. This was on June 1st, and it made 49 lbs. of clover and 24 of buckwheat honey in 1-lb. sections, and they had their brood-combs well filled for winter besides. In providing pasture for my bees I had 10 acres of alsike, 10 of Mammoth, and the pastures were white with white clover; and $\frac{3}{4}$ of a mile from my apiary were basswood-trees and 40 acres of buckwheat, where the bees could go if they wished to, and they did gather so much buckwheat honey that it is hard to get 10 cts. per lb. for nice 1-lb. sections. White-clover honey sells readily at 15 cts. per lb. in 2-lb. sections.

I cut my alsike clover, and had it thrashed, and got 8 bushels of very clean seed. I shall depend upon the alsike clover hereafter, not only for bee-pasture, but also sheep-pasture and for seed. On one side of my sheep-pasture there are three acres of alsike clover. It was sown 4 years ago, in the first part of the season. The sheep feed on the other portion of the pasture; but when the other portion gets short and dry, the sheep run and put their noses into the clover, and it shields them from the gad fly, and gives them good feed also.

I have 35 swarms in the cellar and 10 in A. I. Root's chaff hives, on their summer stand.

L. N. CHAPMAN.

River Falls, Wis., Dec. 12, 1888.

REPORTS DISCOURAGING.

A POOR YIELD.

I MADE preparations last spring for a good crop of honey, and received only about 140 lbs. of fall honey (in comb, no extracted), as surplus, which sold for $12\frac{1}{2}$ cts. per lb. to apply on a grocery bill. You see the bee-business has not been very profitable for me the past season, considering that I ran over 200 colonies for honey. I had only 15 new swarms during the season. I am not one of the class who can get a crop whether it is in the blossoms or not.

O. H. TOWNSEND.

Alamo, Mich., Dec. 11, 1888.

ALL LOSS.

There has been a failure in the honey crop in this locality for two seasons. When we figure the profit and loss, it's all loss. As I read in GLEANINGS recently, I hope for a "whopper" next year.

Damascus, O., Dec. 8, 1888.

EVAN SHREVE.

WINTERING NICELY.

Bees are wintering nicely so far here. It was a very poor season; they did not gather enough to winter on.

CHARLES SITTS.

Brasie Corners, N. Y., Dec. 13, 1888.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 97.—*a. In cellar wintering, do you think top ventilation necessary? b. If not, how much and in what way do you provide for bottom ventilation?*

I do.

MRS. L. HARRISON.

a. I do. b. I also leave open the whole width of the entrance.

GEO. GRIMM.

Some ventilation is necessary, and the difference in temperature is bound to cause a current.

DADANT & SON.

a. No. b. I leave the entrance of the hive open its entire width, $\frac{1}{2}$ inch in height. I should like better to have three times the space, however.

C. C. MILLER.

It does not make much difference about ventilation, and there is a wide difference in opinions regarding temperature; and all this comes about because the whole matter of safe wintering hinges on the food.

JAMES HEDDON.

A little top ventilation I think to be all right. A good deal might do no harm if a steady high temperature is kept in the cellar. As to its being exactly necessary in any case, I hardly think it is. b. Set the hive on blocks.

E. E. HASTY.

I think not, unless it be required to keep the temperature uniform, and at the proper point. If top ventilation of colony in hive is meant, I say no emphatically. I close at top entirely, but have entrance wide open. I would raise each colony 2 inches from bottom-board if I could easily.

A. J. COOK.

a. No. b. Ventilate at the bottom, only by placing the hives in rows with a space between each hive, then tier up, placing each hive over the space below. Set the first row of hives on covers arranged in the same way, or on stringers. This plan is fully described and illustrated in GLEANINGS, Feb. 1, 1888, p. 90.

H. R. BOARDMAN.

Upward ventilation is undesirable. I prefer a bottom-board with an opening in the center. I use an opening 5 x 10 inches. My methods all the year round require this. In winter quarters the bees cluster well down, and may usually be found in a cluster below the bottom of the frames. They are thus assured of their freedom; dead bees also drop out of the hive.

L. C. ROOT.

I don't know that I understand the question. If the ventilation of the cellar is meant, then I should say that it needs no special ventilation; if the questioner is speaking of the hives, then my plan would be to raise them off the bottom-board from two to twelve inches, leaving the top the same as in spring or fall when the sections are not on.

G. M. DOOLITTLE.

No, not usually; but with a warm cellar, with air near the point of saturation, a slow top ventilation may be necessary. We ventilate our hives by drawing a slide in the bottom-board. The slide is ten inches long, and is drawn open two or three inches, or even more, with the stronger swarms and warm cellars.

P. H. ELWOOD.

Not if the temperature is right. If the cellar is moist, the temperature should be higher than if the cellar is dry. I provide for bottom ventilation by removing the bottom-board and raising the hive one or two inches above what it sits on. To economize room I place a square stick an inch or more thick on top of each side of the hive, when in place, and set the next hive on these sticks, and so on as high as I can reach.

DR. A. B. MASON.

b. Dr. Jessie Oren, of Laporte City, Iowa, is as successful as any one I know of in cellar wintering, and his method of bottom ventilation of hives with tight bottom-boards is the best I know of. He sets his hives on ends, or, rather, on lower front corners, at an angle of about 45°, leaving entrances wide open. Succeeding hives are leaned against the first and others, and when the first tier is in place, wide boards are laid on top, then another tier of hives, etc. I inclose a rough diagram of the arrangement. This not only secures bottom ventilation, but allows dead bees and rubbish to drop from the hives during the winter.

O. O. POPPLETON.



OREN'S ARRANGEMENT OF HIVES *

The general opinion seems to be that top ventilation for the hive is not necessary, and that a full-width entrance, or else an open bottom, or nearly so, is sufficient. Dr. Oren's plan would doubtless work very nicely, and the bottom-board at all times would be clean of dead bees. Friends Elwood and Root accomplish the same result by leaving an opening through the bottom of the hive.

QUESTION 98.—*Is your cellar provided with a sub-earth ventilator? b. If so, has your experience taught you that they are an advantage, either for quieting bees or otherwise?*

a. No; b. No.

DADANT & SON.

a. It is; b. Yes.

MRS. L. HARRISON.

No. b. I have had no experience in line with this question.

E. E. HASTY.

a. Yes. b. I think so, but it is hard to be very positive.

C. C. MILLER.

No. I am quite certain that it is worse than useless.

H. R. BOARDMAN.

* The diagram above is not strictly correct. The adjacent corners should come in contact.

No. My ventilators consist of a chimney and several tin pipes.

GEO. GRIMM.

If other conditions be right, I think a ventilator at the bottom of the cellar not only unnecessary, but objectionable.

L. C. ROOT.

No. We use no sub-earth ventilators. We do not believe any good can come from them which will compensate for their cost.

JAMES HEDDON.

No. A chimney extends down into the cellar; and a stove set up for use, in case it is needed, will give all the upper and lower ventilation needed. I have never been annoyed with bees becoming uneasy in winter, unless they were short of stores or eating too much bee-bread.

DR. A. B. MASON.

Yes. For years I kept bees in such a cellar, with almost perfect success. Properly arranged it surely aids to keep the temperature uniform. Were I sure that I could accomplish this easily and cheaply, without such ventilation, then I would not arrange for it.

A. J. COOK.

Yes; but when I say it has been kept closed entirely for the past three years, it will be seen that I regard it of no value whatever. Were I to build another bee-cellar, I would make no provision for ventilation, as I believe enough air passes through the walls and ground to meet all of the requirements of the bees while in winter repose.

G. M. DOOLITTLE.

Yes. If properly put down they are beneficial. They keep a more uniform temperature. At one time, when the temperature outside was 17° below zero, the air as it entered the cellar was 37° above. Our sub-earth ventilator is made of glazed sewer pipe, one foot in diameter for the first hundred feet; for the second hundred feet, eight inches in diameter. At the end of the twelve-inch pipe is an opening, to be used in moderate weather; but in cold weather the whole length of the pipe is used. The joints of the pipe should be securely cemented to keep out the ground air, which is usually loaded with moisture, and heavily charged with carbonic-acid gas. The last is very variable, however. Were I to put down another ventilator I would use six-inch pipe, as being easier to make tight, and multiply them for capacity; also, if possible, I would have them extend in different directions, as the direction of the wind makes a difference in the draft of the pipe. I would also have one or more of them so laid as to act as drains in case of freshet. Ours is so put down, and last spring it was used to nearly its full capacity.

P. H. ELWOOD.

The answers to Question 98 seem to be a little bit perplexing; but Dr. Miller, Prof. Cook, and P. H. Elwood, all of whom have had large experience with sub-earth ventilators, declare quite emphatically in favor of them—especially friend Elwood. We hardly know how to account for the difference in testimony in regard to the value of these ventilators, unless it be because of the relative warmth and dryness of the various cellars, or because of the length or size of the ventilators. Dr. Miller has assured us that, several times when his bees seemed to grow uneasy, he could quiet them by opening the ventilator. We are quite loth to give up the idea just yet, that the sub-earth ventilators are not necessary or useful.

QUESTION 99.—a. *How many colonies, according to your best judgment, can be wintered with reasonable assurance of success in a dry cellar, 10x10x6, frost-proof, with no special means of ventilation other than is afforded by the usual cellar windows?* b. *How many cubic feet of space in a cellar do you regard as best suited for wintering 100 colonies, average strength?*

Forty.

H. R. BOARDMAN.

a. Just as many as you can put in.

DADANT & SON.

You could safely winter 100 colonies in such a cellar.

JAMES HEDDON.

I should say about 40. b. I should like at least 1200 cubic feet.

A. J. COOK.

a. 75 or 80. b. Not less than 1000; and in my judgment, 1200 or 1500 would be better.

MRS. L. HARRISON.

All other conditions being as they should be, 100 colonies can be wintered in a cellar of the size above mentioned.

L. C. ROOT.

I am a Yankee, and guess with native freedom; but it would be carrying matters too far to guess the answer to this.

E. E. HASTY.

a. I do not like the proportion of the dimensions you give; six feet high does not suit me. I would sooner have it 10x6x10. b. This question is hard to answer. I have wintered successfully 350 colonies in a cellar about 20x25x8.

GEO. GRIMM.

All you can get in, providing you leave at least six inches of open space under each hive. Still, I prefer an alleyway through the center of the cellar, so I can pass from one end to the other occasionally to see that all is right.

G. M. DOOLITTLE.

That will depend upon the temperature at which the cellar is kept, and the size of the hive they are kept in. Over 200 in Langstroth hives *might* be kept in such a cellar. I should not care for any special arrangements for ventilation in such a cellar, but should prefer to have not over 100 in a cellar of that size.

DR. A. B. MASON.

a. Two cellars may both answer the above description, and yet be very unlike as to temperature and openness of wall and soil. Perhaps 40. b. The more the better. Perhaps 1500 cubic feet; but best arrangements for admitting plenty of pure air at right temperature might make a good deal less answer. (Mind you, I don't warrant my answers to 99. They are taken at "purchaser's risk.")

C. C. MILLER.

a. This depends upon so many conditions that it is hard to answer. If there is a fire overhead, the air of the cellar will be changed quite rapidly, perhaps more rapidly than with some of the "special means" of ventilation. I should say, with the average conditions, from thirty to fifty. b. The answer to this also depends upon the cellar. Some cellars require pretty heavy stocking to keep the proper temperature. Properly arranged, a cellar of twice the above size would do.

P. H. ELWOOD.

A cellar 10x10x6 will hold from 40 to 100 colonies; and 1500 cubic feet seems to be about the capacity that is necessary in order to winter 100 colonies. This would make a cellar about 15x15x7. The answers to all these questions necessarily can not be exact; but surely our veterans can get very much nearer the truth than the average beginner, who proposes to winter bees in the cellar, can guess at it.

OUR HOMES.

NOTES OF TRAVEL.

Whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life.—JOHN 4: 14.

THE Ojai hot-springs (pronounced Ohi) are 15 miles from Ventura, in the Matilija canyon; the mountain scenery is some of the grandest I have seen.

Right opposite the hotel the mountain rises 1000 feet, almost perpendicular. Several objects of interest are found in the canyon, besides the springs. One of them,



THE DEVIL'S SLIDE, NEAR OJAI HOT SPRINGS, CAL.

called the Devil's Slide, we have reproduced from a photograph. It looks as if the boys, by riding down with their sleds, cut a path, or track, clear from the top of the mountain down the whole 1000 feet, to the river below. This appearance is caused by a stratum of rocks of regular and even thickness being turned up edgewise, with rock projecting a little higher on either side.

The picture was taken when the trees were in full leaf; but now the slide is visible clear down to the water.

To Huber.—Papa is in a strange country now. The sun has just gone down, and it is only 2 o'clock, just 2 hours after dinner time. The man who lives here says in a few days it won't get up above the awful big mountain at all for more than *six weeks*. Behind us is a fountain where the water spurts right straight up, higher than the house; and right down before us, around the great big clean white stones, is a spring where water just pours out that is *smoking hot*. Off up the creek a little way is another where the water is so hot you can hardly bear your hand in it. The men have made a long wooden box to carry the water to a little house where there are a lot of bath-tubs. I just took a bath, and it was real fun, I tell you, to have a big lot of real warm water pour right on to you. It is a funny kind of water, that doesn't need any soap—no, not even for papa's head, and I think even mamma herself would say my head is very clean now. I don't think I ever looked quite so white before in my life. Up in this canyon is a great place to keep bees, and the honey the bees get is the nicest in the world. I saw the man who first found out it was a good place for honey. One year he got more than a hundred wagon-loads of honey from his own apiary. The road he made to draw the bees up and get the honey out, you would think an awful road. It just shakes a body's breath out to ride over it. Sometimes he would stay up there in the mountain gorge, all alone, for two weeks, and not see anybody at all. One of the bee-men hired a boy to work for him. His name was Elmer. Well, he used to leave Elmer all alone there to work, and he didn't see anybody at all for days. One day when they came up, Elmer asked them if they couldn't bring him a cat or a dog, or something that had "the breath of life in it," to keep him company. They said one time he took the ax and chopped a great pile of wood, because he wanted something to do, and because he used to chop wood away back in his home, yet nobody wanted wood around here. Well, out here they have a great deal of trouble with bears. They come to the bee-hives and turn them over, and take their great paws and scoop out the bees and honey to eat. One time a bear spoiled so many hives that Mr. Shaw, the man who first went up here, stayed all night up in a tree, with his gun, to shoot him. He made a little house or cage up in the tree, so if the bear climbed up he could not get at him, and then they waited. About 11 o'clock, along came a great big grizzly bear, and commenced to paw the hives to pieces. The two men in the tree shot him until he was dead.

They have a great many California rats here; and where do you suppose they build their nests? Why, up in the tree-tops; and the way they do it is, that each rat takes a stick in his mouth and walks up the tree. I saw lots of their nests. These rats are very busy folks; they are always carrying something. A lady said the rats once got a habit of leaving a pile of sticks on her doorstep every morning; and to get rid of them, she used them to kindle the fire to get breakfast; and for a long time the rats gathered her kindlings every morning. Mr. Wilkin once lost his clock-key, and found the rats had carried it up garret and put it in an old stovepipe. They make their nests usually in walnut-trees, where it is handy to gather walnuts. Mr. Shaw says there is a place up near his apiary where the ground is so hot, winter and summer, that you can hardly stand on it.

GENERAL NOTES.

I supposed, of course, the heat from these hot-springs was caused by volcanic agency; but the proprietor says it is supposed to be caused by chemical action. These mountains are full of minerals; and when the water from the rains passes over a certain chemical it becomes impregnated, and then dissolves another of just the right kind. Thus great heat is given out. Sulphuric acid and water, when mixed in the right proportions, will become boiling hot. I think one of the prominent chemicals in this water is a salt of iron. I can not see, however, how this should produce that hot spot in the ground, which Mr. Shaw spoke of.

Castor beans here form trees; and even the beautiful fuschia is a hard-wood tree. Imagine a tree covered with fuschia blossoms, more beautiful, larger, and more perfect, than those in greenhouses at home. The century-plant also blooms here. In passing a garden I asked what kind of a tree it was that loomed above all the rest.

"Why, that is the flower-stalk of the century-plant," was the reply. ☐

"But it isn't possible," said I, "that this great tree all grew in one season?"

"Mr. Root, that *great tree* all grew in *just a few weeks*," was the answer. After it blooms, the plant dies. The one I saw was said to be about 30 years old. The plant had been all these years accumulating material for this grand finale—the sending-up of the blossom and seed-stalk. I am impressed with the thought that we are something like the century-plant. We are, during this life, accumulating knowledge, and strength of character, for some grand finale in the great future; but while the century-plant dies down after it, *we are to have* "life eternal."

Dec. 1. Through the kindness of friend Wilkin and Mr. and Mrs. Mercer, I have again had a most pleasant drive through the country to Santa Paula. While there we had a sort of bee-keeper's picnic. I was greatly pleased to meet no less a personage than J. G. Cory, the inventor of the Cory cold-blast smoker, who was a resident of the place. Our older readers will remember the story of friend Cory's kind present. Rufus Touchton, who has written some for

GLEANINGS, is also a resident of Santa Paula. The great center of the oil regions of Ventura Co. is here. A single one of the storing-tanks is 100 feet in diameter, and 25 feet high. From the pipes coming in from different wells, *2000 barrels of oil daily* is emptied into this immense tank. While we were there, by an accident to one of the pipes the oil flowed over the ground so that the men had to turn out with shovels and dam it up until it could be secured. There is quite an extensive oil refinery here. The boilers for working their immense pumps are run with oil as fuel. Between Ventura and Santa Paula are immense farms for corn and barley, and excellent corn was seen all along the way, piled up in immense heaps in the field. Corn-shellers, run by steam, shell and bag it. Plowing is mostly done by a gang of three or four plows drawn by four or six horses. The valley is one of the finest for fruit and grain, that will succeed without irrigation, of any that I have seen. Apricot and English-walnut orchards occupy mile after mile of the land. Great evaporating-houses for the fruit are seen at intervals all along. Immense corn-crisps, without any roofs, are also found, but I believe the best farmers cover their corn in the winter time. Cattle and horses seldom have any roofs over them on the farms. They say, when they have sheds, the animals never go under them, even in *winter*, when it rains. It usually rains in the night time, and sunshine is the rule every *day* in the year. It has rained nearly all of one day since I have been here, but I am told the like has not happened before, since three years ago. Winter and summer are very much alike, only the days are shorter in winter. It seems odd to have this beautiful spring weather, and yet see the days so short. The sun rises now about 7 and sets about 4.

Dec. 2.—Another glorious Sabbath day. I got acquainted with the pastor of the Ventura Congregational church on Saturday; but as he was prevented by sudden illness from preaching, it was suggested, as it was late to go to other churches, that we have a prayer and devotional meeting, instead of the regular services, and very soon it was suggested a stranger from Ohio was present, who was quite a Christian worker, and the leader called upon "Bro. Root" to tell us something of Christian work in Ohio. At the close a number gathered around me as before, and I tell you it made me feel happy to hear different ones say they knew me because they had read my writings. I felt happy to remember that almost every thing I have ever written, told, sooner or later, for Christ Jesus. At the opening of the Sunday-school I was assigned the Bible-class; and learning there was a mission school two miles away that the pastor usually took charge of, by the kindness of friend Mercer we were on hand at half-past two. The key to the schoolhouse was lost, however, and the crowd gathered there had to postpone the school and go home. We got back to town just in time to attend a meeting of the Y. M. C. A., and a most able talk was given us by one of the merchants. The attend-

ance was good, and almost all took part. After this we attended the Endeavor Society, and the leader very soon called on "Bro. Root." The attendance here was nearly all young ladies. The leader told me they were sorry that they had so far been unable to get many of the young men interested. They sent very kind messages to the Society in Medina. They take the *Golden Rule*, and think much of it. The leader mentioned in my talk with her that she had but little time to spare, as three of them had in charge a Chinese Sunday-school, and the pupils were probably waiting for them then. I begged to go along, and, on account of a vacancy, I was called upon to explain the lesson to a lot of Chinese brothers. Yes, *brothers* they are, no matter how they came here, or what the purpose. They answered questions quite freely; and when the teacher told them to let the stranger see how well they could write on the blackboard, they expressed their gratitude to me by well-worded and neatly written sentences in our language. Then they wrote for me in Chinese. At the close of the school they repeated the Lord's prayer, first in English and then in Chinese; and after the school was over, one of them gave me some of their tea from a beautiful China teapot, kept warm in a padded flannel cushioned basket. The Chinese here are very neatly and cleanly dressed, and the boys in the school were, most of them, intelligent, fine-looking fellows. I questioned them pretty closely in my talk with them in the class, and the teacher tells me they told the truth when they said they did not drink, swear, nor steal. She also says Chinamen always pay their debts, and seldom waste time in idleness. As I talked with them I thought of Bro. Ament* and his labors; and when I walked home, pretty well tired with the labors of the day, you need not be surprised when I tell you I had one of those bright experiences that seem to give a glimpse of the heaven that awaits those who delight in being servants of the Lord. Why, the delight in meeting with such beautiful and grand Christian characters as I have met to-day, both among the men and women, is enough to make one break forth in praises to God; and it is not to-day only, but every Sunday since I have left home; and the probability is, that I should be able to find more like them in every town and city, were I to travel *months* and *years*, for I have had the peace of God in my *own heart*, and this has helped me to find Christian people, and to appreciate their good qualities when found. Does some one suggest that, if I were to live by these people day after day, I would think differently of them? God forbid! The person who has in himself the "living water," "springing up into everlasting life," will always find good neighbors, no matter where he is. Dear reader, what kind of neighbors are round about *you*?

Dec. 3.—*To Huber.* Where papa is now,

*The pastor of our church. He has been with us for about four years. The most of his life previous to that time was spent in China. His people, however, kept sending so continually for him to come back that he left us a few months ago to resume his labors at his old home.

the men who ride on horses carry long leather ropes, called lassoes, that they can throw so true as to catch a cow or a horse that is running away, or even catch a man if they want to. These horses with lassoes attached to their saddles are almost always standing hitched in the town; and whenever a team runs away, one of the Spaniards is sure to lasso the horses and stop them before they have gone very far. They have a slip noose in the end of the long leather rope, that they throw over the head or catch the heels of the cow or horse. Some time ago a couple of Spaniards were riding along, and a great grizzly bear came at them. As quick as a wink one horseman threw his lasso over the bear's head, and tried to choke him; but the bear chased the man and horse until the other man lassoed one of his hind legs. Then they had Mr. Bear in a fix. When he tried to get *one* man, the other held him off; and if he tried to get the other, *he* held him off. In this way they tired him out, and really brought him into town, to the great delight of all the town people, especially the *small boys*. The horses the Spaniards ride are trained so that, when their rider throws a lasso, they brace themselves and pull with all their might to hold a cow or horse; in fact, they say they rather like the fun. They tell you here that, if a bear chases you, you must not try to get away by running down hill or up hill, but just run along the side-hill; and as the bear's legs are not made for side-hill running, he will tumble down and roll over every once in a while; and this takes so much time that the man can get away from him.

Dec. 3, just before going to bed. Here I am, away up in a little notch amid the mountains. Of all the winding, tortuous roads, I never before traversed one like this. I am staying with Mr. Thomas Arundel, or better known by the bee-men as "Tommy Irondale." Bee-keepers have been pushed back by the fruit-men until many of them have gone way back, where the bees can't intrude or hinder, and in this way friend A. has found his pleasant home. When he found his bees here in this wild glen gave more and better honey than any of the rest, he persuaded a charming girl, with energy and determination like his own, to share his lot; and here, three miles or more from any neighbors, they have reared their children, four in number. The oldest is now about 7. It seemed odd indeed to find so pleasant a home after three miles of crooks and turns, without seeing a house; and when my neat little room was assigned me, with its many little evidences of feminine taste, so cosy and snug and pretty, I could hardly feel as if I deserved it. I felt like saying, "A. I. Root, what have *you* done to entitle you to the best of every thing everywhere you go? Why should these good people labor and toil to fix up nice pleasant homes, and then place them at your disposal?" To tell the truth, I do feel every day as if I deserved no such kindness; but every little while I get a hint of *why* I am thus honored. As we turned the last curve, and came out through the leafy trees in sight of the col-

tage, friend A. spoke of what I had written in regard to finding that spring of water, of my talk about hydraulic rams, and the wind-mill, and of a pet project of his own to bring that babbling brook to his house, just above us; and then I saw that GLEANINGS had been read*, and my investigations had been eagerly followed by many I did not then know, and in homes I at the time had no knowledge of. Later, when I heard how the good mother had taken these little ones to Sunday-school at the schoolhouse, three miles away, even when a California lion glared at them through the bushes on their way home, I remembered too of the times when I, in my poor way, had tried to tell of the "living water," springing up into everlasting life, and that, in all probability, the dear ones in this home too had been interested, and may be had been helped in that way. Prominently on the neat little stand on which I write is a little Bible, evidently placed there by the same hand that fixed the rest of the room so trim and neat, feeling sure that Mr. Root would want it. May God be praised for this act. I do want it; I want it while I live, and I want it when I die. I want it always near me. Dear reader, I haven't room to tell you of all these homes; but this one is a sample of most of them, and I hope I may never forget to pray for the dear brothers and sisters I have found here in California.

During the day I visited the Sespe Apiary, illustrated in the A B C book. Friend Wilkin now no longer owns it, but it has been turned over to a bright muscular young Canadian, who not only gives it excellent care, but cares for friend W.'s youngest daughter also, and the two handsome children God has given them. Young McIntyre has the best-kept apiary and honey-house I have so far found in California. He brings in the combs to extract on a two-wheeled cart. The cart contains two boxes for holding the combs, with cloth covers to keep out robbers. The cloth is fastened to the box at one edge, and a stick is fastened to the other edge, heavy enough to keep the wind from blowing it away. I will describe his can for holding the cappings at some future time, with suitable engravings. As I passed through Santa Paula, Rufus Touchton handed me a box of beautiful large strawberries. All the bee-friends seem to know of my interest in strawberries, and I was a good deal "touched" by the compliment and courtesy.

AN OPTICAL ILLUSION.

When you are driving on a level road that runs straight toward a range of mountains, when about a mile away from the mountains you will feel sure you are going down hill. Even when going up hill toward the mountains I was so sure it was down that I became almost tired with my friends when they declared it was not down. In fact, I could not believe it until we came to a stream of water, and I was then startled to

find it running up hill! If you turn about, however, and look behind you, every thing looks right. Old residents learn to allow for this deception; but new comers are very much astonished.

December 4.—To Huber. O Huber! I wish you could be with papa just a few minutes. All around me are the great mountains, with the sun shining on their peaks. Before me is a beautiful green tree, just splendid with loads of red berries. Beside me are Frankie and his sister, and Norman is drawing his wagon up the hill, and Louisa is the baby. The boys are bareheaded and barefooted right here in the winter. They are asking me why I did not bring Huber along. I have just been up the canyon a mile or more to see a beautiful waterfall. The water comes down from about as high as the chimney to our house; and the funny part of it is, that the water itself has made a trough on the back side of the falls, so it just slides down. The water is of a kind that covers every thing with stone. I had to climb like every thing to get up to the fall; but as the buggy was waiting for me, I skipped back down the rocks pretty lively. I feel real strong and well and happy. The buggy is waiting now, so I must stop writing and bid the little prattlers and their mamma good-by. Off we go among the great mountains again, and find another bee-man. There are lots of bears around here, and they trouble the bee-keepers. I have just been looking at a big oak-tree that has great scars on its bark, made by a bear's claws. Mr. Reasoner had bad luck with his bees one year, so that only 11 colonies were left. Well, an old bear came every night and clawed the honey out until only one of the 11 was left, and Mr. R. wanted so bad to keep that one that he hung it up in the tree by a rope, so high the old bear could not reach it. He could not carry it away, for the bees that were gathering honey would be lost; but if it were hung up they could find it. Well, that night the bear came after more honey; and as he could not reach that last hive, he clawed up the tree and commenced to slide down on the rope, to get the bees. Now, the rope held the hive very well, but it wouldn't hold a big bear too, and so it broke, and down came bear, bees, and all. I guess he must have been somewhat astonished; but he gathered himself up and ate all the honey, and then went off. As he had now got the last one, Mr. R. thought he wouldn't come any more; but back he came the next night. Well, the bees that had no hives wanted to work somewhere, and so they went into the bee-house near by, and built some combs under the clock-shelf, and, don't you believe that that old bear smelled the honey under the clock-shelf and wanted that too? but as the honey-house was shut up and locked, he could not get in; but he made a hole in one corner with his teeth and claws until he could get one paw through, and then he reached in as far as he could and tried to claw down that last bit of honey the poor bees had made. I saw the place where he made the hole in the bee-house.

And now it is night again, and papa is

* The most prominent thing in friend Arundel's library is volumes of GLEANINGS, neatly bound, and lettered on the back in home-made binding and lettering.

away off alone in the wilderness waiting for a train. The train never stops here unless some one burns a newspaper and waves it across the track to let them see that somebody wants to get on. As it is awful dark, and papa has got to wait over an hour, he has built a fire of sticks, and the kiotes have come up as near the fire as they dare, and are making an awful barking and growling. Papa is almost afraid some bad men might see the fire, and come to rob him. Pretty soon he hears somebody. It is a man who has been up in the mountains digging gold, and he shows papa by the light of the fire the gold he dug to-day. Pretty soon another awful big man comes up, swearing fearfully, because he says nobody will give him work, and he hasn't any money. Papa is awful glad the other man is there, and he gives the bad man a real good talking-to, because he swears so bad. Then the bad man pulls out a bottle of whisky and wants us to drink; but when he finds we are both temperance men he goes off in the dark, swearing harder, and saying he never saw two such men before in his life, that won't drink when somebody offers to give it to them! Just here the old locomotive came in sight; the gold miner waved the burning paper, and we were soon in the cars among nice people. In just a few minutes more we stopped at a nice town where supper was all ready, and a man was pounding a gong to get us to come in and eat it. Now just think how funny! This gold miner knows Uncle Hen's cousin, and he is going to help me to find him. He also asked me to go with him out in the mountains and see him dig gold, but I don't think I shall have time.

Dec. 5.—There are now but few small beekeepers in California—at least I have not found them. I have visited nearly a dozen apiaries, and few of them are less than 300. Most of them admit that a smaller number would do better in one locality, but the convenience of having all in one place overbalances. Most of them live in the towns, and have their bees located in the mountains, and look after them only occasionally, except during the honey-flow. McIntyre, Arundel, the Reasoner Bros., our old friend Lechler (who gave us that wonderful report some years ago), Marple, and Sniffin, all live near their bees. I am greatly indebted to the first three for leaving their work and passing me from one to the other, over and through the mountains, and up the canyons. A good many, I find, are discarding the hexagonal apiary, or, rather, modifying it so as to have the hives stand in double rows, radiating from a common center like the spokes of a wheel. The alley formed between the double rows is for running a cart or wheelbarrow through, for carrying the honey to the honey-house, the entrances to the hives being all turned outward, so that the operator and cart never stand in the way of the flight of the bees. Friend Reasoner has grapevines also, planted near the hives for shade, with this form of apiary. His hives are all neatly painted. Friend Lechler has his in long rows under live-oak trees, and says he always gets most honey

from hives in densest shade. This is an important item. Another thing in favor of shade-trees is, that they take the strength (or moisture) from the ground so thoroughly that no weeds grow, and the ground under the trees is as clean as a floor. Almost all agree that, where many hives are all alike, the bees are constantly going into the hives on the *outside* of the apiary. I think this should be corrected by having the hives made more unlike in some way.

Friend Reasoner helped me to ascend the first big mountain. I say helped, for I could not well have done it alone. I wanted to see the end, or termination, of a canyon, so we took a light cart, or sulky, and a big strong horse. When the horse began to get tired he walked while I drove along on the winding slope, all the time on the edge of a frightful abyss. When the horse got tired with me alone, I too went afoot until we came to the dividing ridge. Here the canyon ends; but right over the edge of the sharp ridge another canyon begins, taking the water in an opposite direction, and thus it is there are no mountains without their accompanying water-courses.

Well, my friend said he would stay with the horse on the ridge, while I walked along it until I came to a higher elevation, a real mountain peak. Strange to tell, the ground on these mountain peaks is soft and yielding, and mellow enough for a beautiful garden. As I went up, up, the sides became steeper; and as I gazed into the frightful abyss all around I became dizzy; then my throat began to be dry and to smart, and finally my ears began to feel strangely on account of the rarity of the air. Once I began to think of going back, as my breath got so short; then I discovered a faint path across the side-hill at an angle, and this I found much easier. Spanish bayonets were all around me, and their leaves were so sharp they went right through my clothing, so I had to pick my way. The summit is finally reached, and from the dizzy height I see only other summits like my own, in every direction except toward the ocean. I could not see its waters, but there seemed a sort of vacancy in that direction. All around was one vast solitary ruin of nature. My friend and his horse looked like rats, and yet they were up miles from the valley below. I was surprised to find these mountain peaks quite well frequented by different kinds of wild animals, as was evident by their excrement, which was so plentiful and some of it of such large size I guessed it must have been from bears and mountain lions, as well as wildcats and smaller animals. I do not know what should call them to these extreme peaks. I judged they were mostly flesh-eating animals. Mountains are wonderfully deceptive to the uninitiated. Mr. McIntyre told me a peak before the house was two miles away, when it was apparently right close by. I could not realize it until he pointed out some animals near its summit, and asked me what they were. They were little specks that I thought might be small pigs until he told me they were cows. Again, we often came to the "end of the road," apparently. The mountain was sure-

ly entire, and without any crevice or opening; yet as we went on, before you knew how it came about, a canyon opened, where, a few minutes before, was the clear smooth mountain-side.

Continued Jan. 15.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 1, 1889.

Before the mountains were brought forth, or ever thou hadst formed the earth and the world, even from everlasting to everlasting, thou art God. PSALM 90: 2.

RENEWALS are coming in rapidly and promptly, for which we tender thanks. We have 842 names.

MANY kind expressions come in in regard to the biographical sketches. See Kind Words elsewhere.

MY VISIT TO CALIFORNIA.

THESE notes of travel will occupy considerable space in several issues yet—probably until March 1.

A WEDDING-CARD.

THE following announcement, gotten up in the latest style of the art, comes to hand:

Married, Thursday, December twenty-seventh, 1888, Husted, N. Y., Julia C. Collin, Geo. H. Knickerbocker.

We extend our hearty congratulations.

LOSS BY FIRE.

WE are advised that the first installment of the Langstroth Revised was destroyed by fire while in the book-bindery. As a consequence, the work will not appear as soon as it was anticipated. The loss was covered by insurance, and the delay will be of comparatively short duration.

DEVICES FOR CARRYING HIVES.

WE have received a host of letters on the subject as above—more than we expected. We extend our thanks to one and all. The most of the devices for the purpose are quite similar in principle. We hope to illustrate one or two of the best soon; but for the present it will hardly be worth your while to send in more suggestions.

AT HOME AGAIN.

I AM once more (Dec. 20) at home again. The past few weeks seem so much like a dream that every little while I have to shake myself and look around to make sure that I am in wintry Medina instead of away off in California, the land of perpetual flowers and sunshine. I am glad I am here, though, after all.

THE IGNOTUM TOMATO.

EVER so many have been asking whether the seed of this tomato is all gone yet. To be sure, it is not. We had about 5000 packages prepared to give away to our readers, and I do not think we have given away 1000 so far. Every subscriber of GLEANINGS who raises tomatoes may have a sample

package, simply by asking for it when they renew, or telling us on a postal card at any other time.

GARDEN-SEEDS FOR 1889.

NOT only in Florida, but in California and other points in the West and Southwest, we are having quite a little call for garden-seeds, and we accordingly submit a list with prices in this issue. I am experimenting with and testing pretty much all of the novelties, but I have not found any of them sufficiently satisfactory to warrant me in giving them a place in our list, except those already mentioned. I would say, however, that some of the new things will be recommended if they behave as well another season as they have during the past.

ACCEPTABLE MATTER FOR GLEANINGS.

THERE is a big pile of copy on our desk, awaiting insertion. It can't all find a place, and, according to the rule of the survival of the fittest, some of it we fear will have to go unprinted. At times we have so much copy that even good and valuable matter shares a similar fate. Remember, our space for articles, especially long ones, is limited; but we will make room for short pithy items. Questions are always acceptable when briefly stated, and when written upon a separate slip of paper. Don't expect an answer—at least, not immediately, if you mix your questions up with other matter.

PROFESSIONAL MEN IN OUR RANKS.

CONCERNING the biographical sketches and the portraits in the A B C form in last issue, one of our correspondents, G. C. Hughes, Pipestem, W. Va., well says: "After a glance at the intelligent faces, one would suppose that the members of the bee-fraternity are second to none—not even those of the legal profession." Very true, and yet it is not surprising; for there are lawyers, doctors (lots of 'em), professors, ministers, and, and—even editors (beg pardon) in our ranks. Of the non-professional men with us, we need not be ashamed. We have great reason to be proud of our representative bee-keepers. They would and do adorn and honor almost any calling.

ERRATUM.

ON page 961, Dec. 15, just below the diagram, instead of the expression, "Now, the mountains in the table lands," it should read, "Now, the mountains composing our great mountain ranges," etc. The idea is, where we find mountains composed of regular level strata, it indicates that the surrounding land and rocks have been washed or worn away; whereas the real mountains proper have their strata tipped obliquely, and sometimes clear up to the perpendicular, indicating that they have been thrown up by earthquakes or volcanic action. In Arizona and New Mexico the mountains like the diagram are quite common; but in California, along the Rocky Mountains, and through Utah and Colorado, they are of the other sort—see p. 27. Of course, the action of the wind and water is constantly wearing down and modifying both kinds.

POTATOES—DOES THE VARIETY HAVE ANY INFLUENCE ON THEIR ROTTING?

I HAVE always been a little skeptical in regard to this matter until the past season. On our creek-bottom ground we raised tremendous crops of Early Ohio, Early Pearl, Lee's Favorite, and Empire State, with scarcely a rotten potato in several

hundred bushels. Well, right on the same ground we planted one row of a choice variety of potatoes sent us to be tested. When the hands were digging the others I thought I would dig this new variety. Now, although there was a very good show of tops when they were green, imagine my surprise to find not a potato of any kind or size in the first hill. When the second hill turned out the same way, I called the boys to know what the matter was. The reply was, "They all rotted quite a spell ago;" and on looking closely I found the remains of what had been potatoes. I did not find a potato fit to cook, for a sample, in the whole row. It seems to me that this settles the matter, that some varieties of potatoes are much more disposed to rot than others, and I shall have to tell my friend that his new seedling is not a success in our locality. As our potatoes were on rather low ground, and we have had an unusual amount of rain this season, during a dry season the result may not be the same.

CALIFORNIA CLIMATE FOR HEALTH.

I NEVER in my life weighed more than about 130 pounds, without my overcoat; but on my return from California I pulled down 142 strong. I occasionally take my before-dinner nap; but I am feeling so well most of the time that it is hard for me to sleep. And those spells of nervous prostration, which I have mentioned, have disappeared almost entirely, even if I work steadily in the office all the forenoon. Very likely, however, rambling over the mountains in the open air, and being outdoors almost all the time, would have almost as beneficial an effect in our climate as it would have in California. There is this about Southern California, however: Their climate is such, even in the winter time, that most people prefer to be outdoors the greater part of the time; and even while indoors, the doors and windows are open so much there is but little danger from suffering from stagnated atmosphere. Another thing: The greater part of the buildings have more or less openings that admit pure air, even if one should forget to open the doors and windows. I heard a good many object to having houses lathed and plastered, because the lath and plaster cut off the circulation of the air, more or less. Our stenographer adds, by way of a joke, "Climate is good, but 'climbit' is better."

SPECIAL NOTICES.

A BIG BARGAIN IN LETTER, NOTE, AND STATEMENT HEADS; ALSO LABELS OF GLAZED PAPERS.

A paper firm near us has recently become insolvent, in consequence of which we have secured some very fine label stock, also letter and note paper, statements and bill-heads. Any of our readers who are in need of any thing in this line will do well to write for samples and prices.

CHEESE-CLOTH AND COTTON SHEETING AT A BARGAIN.

We use both the above fabrics in making strainers and covers for our honey-extractors. In making an order recently, we, by a misuse of terms, got more than we intended. We accordingly offer it to our readers as follows: Cheese-cloth, 5 cts. per yard; 10 yards, 45 cts. By the piece of 60 yards, 3½ cts. per yard. This is 36 inches wide. Cotton sheeting, 36 inches wide, weighing 11 lbs. to the piece of 40 yards, 8 cts. per yard; 10 yards, 75 cts.

By the piece of 40 yards, 7 cts. per yard. If you would like to see what you are getting before you order, we can mail you a small sample on application.

THE CHICAGO SINGER SEWING-MACHINE.

Our readers will remember that, in our premium list issued with the Nov. 15th number of GLEANINGS, we devoted a full page to the above machine, offering them as premiums, also for cash. Several of our readers somehow got the impression that it was an advertisement inserted by us for the manufacturers of the machine, and have been writing them direct, only to have their letters forwarded to us for reply. We wish to say that the company do not sell the machines retail, but only through newspapers and journals. If you wish to know anything further than we have said in regard to them in premium list, please write to us, not to the company in Chicago.

REDUCTION IN THE PRICE OF BOXWOOD POCKET-RULES.

We have just laid in a new supply of pocket-rules, and can offer you better value for the money than ever before. The following is our complete list, with prices:

Post.	Name and description.	Price.	10	100
2	RULE, 1-FOOT, FOUR FOLD, round joint, No. 69	10	45	40



This is the very same rule we have been selling for years at 10 cts. each. We have now got them down to the five-cent counter.

2	RULE, 1-FOOT, FOUR FOLD, SQUARE JOINT, EDGE PLATES, No. 64	10	84	80
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This has much stronger joints than the five-cent one; other wise it is no different.

3	RULE, 2-FOOT, FOUR FOLD, SQUARE JOINT, No. 61	10	84	80
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An excellent rule for the money; has better joints than our old 10-cent one.

4	RULE, 2-FOOT, FOUR FOLD, HALF BOUND, No. 84	25	10	20
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This is the very rule we have sold for years at 35c. It is brass bound on the outside edges.

5	RULE, 2-FOOT, FOUR FOLD, No 60, double-arch joint, full brass bound	35	10	30
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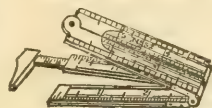
This is our new 35-cent rule; is much better than the old, and I don't believe you will find it sold anywhere else for less than 50 cents.

6	RULE, 2-FOOT, 4 FOLD, 1½ in., No. 78½	50	40	40
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This is the best rule of its size made. It is just like the 35-cent one, except it is 1½ wide, closed, while the 35-cent one is 1 inch.

3	RULE, 2-FOOT, 6 FOLD, No. 58. Arch joint and edge plates	35	30	28
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Closes to 4 inches in length, which is sometimes convenient.



3	RULE, 1-FOOT, CALIPER, No. 32, arch joint, four fold	25	10	20
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We formerly sold this rule for 50 cts.; but for a year or two at 35; now we have it down to 25.

4	RULE, 1-FOOT, CALIPER, No. 32½, arch joint, brass bound, four fold	35	10	30
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This is the same as the 25-cent one, but is brass bound, and the best rule of its size made.

4	RULE, 1-FOOT, CALIPER, TWO FOLD, No. 36½	25	10	20
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This is a very convenient rule sometimes, as it will caliper 5 inches.

2	RULE, 6-INCH, CALIPER, TWO FOLD, No. 36	15	10	13
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We sold this for years at 25 cents; afterward at 20; now it is down to 15 cents.

All the above rules are made of boxwood, by the Stanley Rule and Level Co., who have the highest reputation for this class of goods of any manufacturers we know of.

SEEDS

Our sales in 1888 double those of 1887. Why? Because we sell only the Best, at Reasonable Prices.

Small Fruit Plants and Trees, Catalogue Free.

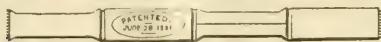
FRANK FORD & SONS, Ravenna, Ohio.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.

21tf ANTHONY OPP, Helena, Phillips Co., Ark.

J. FORNCROOK & CO.,

MANUFACTURERS OF THE

"BOSS" ONE-PIECE SECTIONS,

Will furnish you, the coming season, ONE-PIECE SECTIONS as cheap as the cheapest. **WRITE FOR PRICES.**

Watertown, Wis., Jan. 1, 1889.

1d

In responding to this advertisement mention GLEANINGS.

HEADQUARTERS IN THE WEST

FOR THE MANUFACTURE AND SALE OF

Bee-Keepers' Supplies.

CHAFF AND SIMPLICITY HIVES FURNISHED AT A GREAT REDUCTION IN PRICE.

A full line of supplies always on hand. Also Italian queens and bees at a very low price. Send for large illustrated price list. 1-23d

A. F. Stauffer, Sterling, Ill.

In responding to this advertisement mention GLEANINGS.

FOR THE SEASON OF 1889.

Headquarters in the South.

ELEVENTH ANNUAL CATALOGUE NOW READY.

The only steam-factory erected in the South, exclusively for the manufacture of Bee-Keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured—in April and May, \$4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Eleventh Annual Catalogue.

1-35d

P. L. VIALLO,

Bayou Coula, Iberville Parish, La.

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

WE ARE READY

To fill orders for Apiarian Supplies cheaper than the cheapest. Those in want will please write for price list and sample sections. Address

1d

J. B. MURRAY, ADA, Ohio.

FOR SALE.

OUTFITS for making 2-OUNCE SHAVING SECTIONS, consisting of one Form and a sample Frame of 20 Sections made up, ready to lift off the Form; also enough Veneer to make 1,000 Sections. All packed, and delivered at the Express Office, for \$2.50. Address **W. HARMER,**

411 Eighth St., Manistee, Mich.

SEND NOW

for my 1889 price list of supplies, 4-piece poplar and basswood sections at \$3.50 to \$3.00 per M. Poplar sections for the new Heddon hive a specialty. Price lists out Feb. 1st. **H. P. LANGDON,**

3-6db

East Constable, Frank Co., N. Y.

In responding to this advertisement mention GLEANINGS.

«New Orleans Apiary.»

Three hundred colonies of Italian and Carniolan Bees for sale at a low price, all in Langstroth hives. No rent to purchasers for the location, or will sell in small lots, to be shipped in the spring.

Address

J. W. WINDER,

1-2d

New Orleans, La.

In responding to this advertisement mention GLEANINGS.

THE "REVIEW."

THE BEE KEEPERS' REVIEW for Dec. has four extra pages—twenty in all. Upon the first page is a brief history of the "REVIEW," also an excellent

PORTRAIT OF ITS EDITOR

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It begins with taking the bees from the cellar and goes over the ground briefly, clearly and concisely, until the honey is off the hives; touching upon the most important points; and especially does it teach when, where and how foundation can be used to the best advantage; when combs are preferable, and when it is more profitable to allow the bees to build their own combs. Price of the book, 25 cts.

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W. Z. HUTCHINSON, Flint, Mich.

In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth \$200. I will give somebody a rare bargain. Speak quick. 15ftdb

C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange one section machine (of A. I. Root's make), which has been in use but little, for bees, honey, or bee supplies. 24ftdb

E. Y. PERKINS, Jefferson, Greene Co., Iowa.

WANTED.—One trio Brown Leghorn Rose-comb chickens, and one trio White Leghorn Rose-comb chickens. PETER METZ, Poplar Grove, Ark.

WANTED.—To exchange apiarian supplies for printing to the amount of about \$25.00. 1ftdb

WM. H. BRIGHT, Mazeppa, Wabasha Co., Minn.

WANTED.—Japanese buckwheat. Send sample, price, and state quantity to sell. 1-d

S. M. ISBELL & Co., Jackson, Mich.

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WM. H. BRIGHT, Mazepa, Wabasha Co., Minn.

WANTED.—To exchange one muzzle-loading rifle, 3½ ft. barrel; half stock, 200 bore, as good as new, \$10.00; for extractor, fdn. mill, comb fdn., bees or nuclei in spring. G. W. MCGUIRE,
2d Dark Ridge, Watauga Co., N. C.

WANTED.—To exchange one of Livingston's farm feed, or grist mills, for hand or power, as good as new, for Barnes foot-power saw. 2-3-4d
H. L. FISHER, Milford, Kos. Co., Ind.

WANTED.—To exchange a Barnes foot-power saw, combined circular and scroll, for a foundation-mill, 10-inch, A. I. Root's preferred. 2d
MATHEW DODDS, Sauk Center, Stearns Co., Minn.

WANTED.—To exchange buzz-saw, foot-power, 4 saws, 8 to 16 inch; all good as new. Also a few P. R. Chicks, fine, warranted. C. E. HATCH,
2d Kentland, Ind.

WANTED.—To exchange red-cedar trees, for hives or bees. Write. M. SPRING,
2d 607 Louisiana St., Richmond, Va.

BROTHER BEE-KEEPERS,

Order your supplies from a railroad center, and save freight. Goods sold as cheap as elsewhere. Send for price list free.

2tfdb W. D. SOPER, Jackson, Mich. Box 1473.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL.
See advertisement in another column. 3tfdb

FREE to all, A WHITE-GRAPE VINE.
Send 10 cents for postage, etc.
POINT BREEZE GRAPERY, Reading, Pa.,

SEEDS

Our sales in 1888 double those of 1887. Why? Because we sell only the Best at Reasonable Prices.

SEED POTATOES, largest stock, great variety.
Small Fruit Plants and Trees, Catalogue Free.
FRANK FORD & SONS, Ravenna, Ohio.

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W. Z. HUTCHINSON, Flint, Mich.

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SECTIONS and FOUNDATION CHEAPER THAN EVER.

Sections Only \$3. Dealers write for special prices. Free samples and price list. 1-12db
(Near Detroit.) M. E. HUNT, BELL BRANCH, MICH.

12 In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL.
See advertisement in another column.

NUMBER ONE OF THE

QUEEN - BREEDER'S JOURNAL

Is now ready. Send your name on a postal, and receive a free sample copy of this bright new journal. Only 50 cts. per year. Address the

Q. B. JOURNAL, Marlboro, Mass. 24d
E. L. PRATT, publisher.
We want to put an advt in every bee-book and circular printed this coming season. Don't fail to write us, giving your price.

12 In responding to this advertisement mention GLEANINGS.

FOR SALE, BEFORE MARCH, 30 COLONIES ITALIAN AND HYBRID BEES.

Good condition—Simplicity hives—bargain given. 1d

P. H. HARRIS, Greenville, Illinois.

12 In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—The new year opens up with a quiet trade generally. Honey sells in a single-case way. Prices are lower than in November on all grades, excepting, perhaps, choice white comb in small sections and cartons. This is not plentiful, and brings 17@18c. But there is so much graded "white" by the producer that does not meet the views of purchasers as to cause more or less dissatisfaction; and such prices as can be obtained are accepted for the "off" grades. Extracted remains about the same; demand light. *Beeswax*, 22.
Jan. 7.

R. A. BURNETT,
161 South Water St., Chicago, Ill.

NEW YORK.—*Honey.*—We are forced to report a dull market. Stocks are light, but demand very limited, which we presume is due to the mild and unseasonable weather. We quote: Fancy white, 1-lb. sections, 14@15c; 2-lb., 12c; fair white, 1-lb., 12@13; 2-lb., 10@11c; buckwheat, 1-lb., 10@11; 2-lb., 9@10c; extracted, white, 7½@8; buckwheat, do., 6@6½. The latter is in fair demand, and we would advise bee-keepers who have any on hand to ship here.
Jan. 10.

HILDRETH BROS. & SEGLKEN,
28 & 30 West Broadway, New York.

KANSAS CITY.—*Honey.*—Choice 1-lb. sections, 15@16; dark 1-lb., 12; 2-lb., 14; dark, 11. White extracted in 60-lb. cans, 8; amber, 7; in barrels and kegs, 5@8. Demand good, prices steady, and stock large. *Beeswax.*—None in market.
Jan. 4.

HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

CINCINNATI.—*Honey.* There is no change in the market. Demand slow, with a smaller supply than ever before at this season for the last 10 years. Extracted honey brings 5@8 on arrival. Comb honey, 12@16, in the jobbing way.

Beeswax.—Demand is good; it brings 20@22 for good to choice yellow on arrival.

Jan. 9. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

KANSAS CITY.—*Honey.*—Honey is moving more freely. We quote white 1-lb. comb, 16@17; fall, 1-lb. comb, 14@15. California, 1-lb. comb, 16@17; same, 2-lb., 12@15. Extracted, 7@8. *Beeswax*, 20.
Jan. 7.

CLEMONS, CLOON & CO.,
Kansas City, Mo.

ALBANY.—*Honey.*—Market very slow, as usual after holidays. May do better a month later, but will depend on how much stock is left over.
Jan. 8.

H. R. WRIGHT,
Albany, N. Y.

ST. LOUIS.—*Honey.*—Our market is well supplied with California in cans. Local shipments scarce; demand fair. We quote, barrels, 5½@6½. Cans, 7@7½. Comb, 14@16. *Beeswax*, 20.
Jan. 7.

D. G. TUTT GROCER CO.,
St. Louis, Mo.

COLUMBUS.—*Honey.*—No change in our market. Sales very slow. No. 1 white clover, in 1-lb. sections, 17@18. Dark, 15@16.
Jan. 9.

EARLE CLICKENGER,
Columbus, Ohio.

DETROIT.—*Honey.*—White comb, in one-pound sections, quoted at 16@18c; sales slow, but the supply is gradually decreasing. Extracted dull at 7@8. *Beeswax*, 22@23.
Jan. 7.

M. H. HUNT,
Bell Branch, Mich.

No change in honey. BLAKE & RIPLEY,
Jan. 7. Boston, Mass.

FOR SALE.—A few cases of choice white comb honey in sections at 16c per lb., delivered at express or freight office here. Cases weigh 22 to 27 lbs.
A. FIDDES, Centralia, Marion Co., Ill.

FOR SALE.—800 lbs. or more of a good quality of white honey, in crates holding 12 sections, weighing about 11 lbs. to the crate. I will take 14 cts. per lb., f. o. b. here.

JOHN HANDEL,
Savanna, Carroll Co., Ill.

SPECIAL NOTICES.

PRICE OF CLOVER SEED ADVANCED.

Both alsike and peavine clovers have advanced in price recently, so that we can not furnish seed at the prices named in our catalogue. Prices for the present will be as follows: Alsike, 20 cts. per lb.; \$2.25 per peck; \$4.40 per ¼-bushel; \$8.50 per bushel. Peavine, or mammoth clover, 15 cts. per lb.; \$1.80 per peck; \$3.50 per ¼-bushel; \$6.50 per bushel.

JAPANESE BUCKWHEAT.

Any one who is not satisfied by this time of the great superiority of this new grain over the common, or, in fact, all other kinds, has only to read the reports in our agricultural journals. We have at present on hand, ready for the season's trade, between 300 and 400 bushels; and, judging from the prices at which it is offered in the various seed catalogues, compared with the prices we give, it would be nothing strange if every pound should be gone before time for sowing, and very likely we shall be compelled to advance prices as we have done for each season since it came out; therefore it behooves you to get your orders in early. Get your seed by freight, so as to save express charges, and then when you get your ground ready you will not have to telegraph for seed by express, and perhaps then be told that it is sold, and no more can be had. Compare the prices you find in the various seed catalogues with our own, which are: Bushel, \$2.00; half bushel, \$1.25; peck, 75 cts.; pound, 10 cts. By mail, add 9 cts. extra for each pound. Remember, our prices also include bags.

A WATERBURY WATCH ESPECIALLY FOR LADIES AND MISSES.

We are just in receipt of the first lot of small-sized watches designed especially for school-teachers or little girls. I have often thought that, when the boys were getting so much enjoyment and real profit by having a watch that would keep time for a very small amount of money, it was a pity that their sisters could not have one just a little smaller, to help them to be prompt and energetic. Well, friends, we have got it. It is a perfect little daisy—only 1½ inches in diameter, stem-winding and stem-setting. In this latter respect the girls will have a big advantage over boys. It is also short-wind, and won't take all the time a girl or boy can spare before breakfast time to get his watch wound up. Then if our little friend should forget to wind it every morning, and let it run down, she can set it with the family clock by simply pushing in the winder which turns the hands, instead of winding the watch. When I was in the jewelry business, if I could have offered such a watch to school-teachers for \$10.00 I should have called it wonderfully reasonable. The price of this little watch is only \$4.00. Sent by mail, registered, post-paid, for 15 cts. extra. Now, then, my friend, if you have got a good little girl at your house to whom you wish to make a good and useful present, I do not know of any thing in the whole wide world that will hit the nail right squarely on the head like the misses' Waterbury. When you order it, be sure to say "Letter L." Letter J is exactly like the one I have just described, only it has a second-hand, and is the size of the ordinary Waterbury—2½ inches across, and is the same price, \$4.00.

CONVENTION NOTICE.

The Northeastern Ohio, Northwestern Pennsylvania, and Western New York Bee-keepers' Association will hold its tenth annual convention in City Hall, Franklin, Pa., Wednesday and Thursday, January 30th and 31st, 1890. Good hotel accommodations have been secured at \$1.00 per day. C. H. COOK, Sec'y., New Lyme, O.

PRICE LISTS RECEIVED.

Price lists for 1889 have been received as follows:
D. Kaufman, Needy, Oregon. Bees and queens.
W. D. Soper, Jackson, Mich., an 18-page list of bee-supplies.
F. H. Cook, Andover, Ct. Club list to bee-keepers.
M. H. Hunt, Bell Branch, Mich. Bee-keepers' supplies.
We have just printed for S. H. Colwick, Norse, Texas, a four-page price list of bees and queens.
We have also just printed Paul L. Viallon's eleventh annual price list of bee-hives, etc. Bayou Genla, La.
We have now in press a catalogue of articles pertaining to the bee-business, for G. E. Hilton, Fremont, Mich.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column



Vol. XVII.

JANUARY 15, 1889.

No. 2.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Copies to different postoffices, NOT LESS than 30 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 22 cts. per year extra.

BEE-CAVES VS. HOUSE-CELLARS FOR WINTERING BEES.

SOME THOUGHTS ON QUERIES NO. 94, 95, AND 96.

CELLAR wintering of bees has come to be quite an absorbing thought in the minds of all apiarists living north of latitude 40°, and, in my opinion, whoever lives in the year 2000 will see nearly if not all colonies of bees then existing north of this degree of latitude, wintered in an underground repository. If this is to be so, it is of some moment that the ideas which are now assuming form on this subject be turned into the right channel. Why I make the prophesy as above is, that, with each succeeding year, the timber land of our country is growing less and less; so that, when the year 2000 comes, very few if any of the forests which now exist here at the North will be allowed to stand. In these forests have been our protection from the extreme cold which now is beginning to be experienced in many localities where the timber is already becoming scarce. This timber is of a twofold protection against cold: First, it holds the water in the ground so that many springs exist which otherwise would not; and these springs, where they abound, modify the air to a much larger extent than many suppose; and, second, the force of the wind is broken, so that, when a warm day appears, the bees in a sunny nook out of the wind can get a nice flight, while those in an exposed situation can do no such thing. Thirty-five years ago there was scarcely a winter when bees could not fly as often as once in six weeks; and our mill on the stream which runs, or used to run, about 50 rods from where I live, was run by

water nearly every day in the year. Now we often have from four to five months in which the bees can not fly, and the mill is run nearly if not quite half of the time with steam, on account of lack of water. I used to leave two-thirds of my bees on their summer stands, putting the other third in the cellar; now I put two-thirds of them in the cellar, leaving the other third out, packing them for winter in the best possible manner; yet, with all of my care, the cellar seems to be winning favor with each succeeding year.

Now, aside from the causes given above, there is another reason why the cellar is gaining in favor. When I first began to winter bees in the cellar I used one under the house, while now I use one entirely away from any building; and this latter is so much superior to the former that it is winning my affections altogether. In what is it superior to the former? Chiefly in the temperature being entirely controlled without any interference of mine during the whole time that the bees are in their winter quarters. In answering query 94, Dr. Miller and Mrs. Harrison are favorable to a warm room overhead, presumably to keep the cellar warm; while in Query 95, both are compelled to lower the temperature by carrying in ice or otherwise. Now, this is just where a cellar under a superstructure fails. Just in so far as a warm room is of advantage in extreme cold weather, it is of positive disadvantage in a warm spell in winter. Who wants to be obliged to keep a fire in or over a cellar all winter, every time the mercury sinks to zero, or open all doors and windows which the cellar contains, carry in ice and what not, every time the mercury rises to 50° or 60° above zero? And even after we

have had all of this trouble, our pets are not nearly as well off as they would have been had the temperature kept evenly at 45°. Of course, where one has no other place in which to winter bees, he must do the best he can with what he has got; but the point which I object to is, the recommending of any thing which requires so much fussing and anxiety of thought, above something which requires nothing of the kind, and over one, which, after a thorough trial by even the most prejudiced, would be recommended as much superior to the old way.

At Query 94, Dadant & Son "hit the nail on the head" when they say there is no difference, if the temperature can be kept the same; and George Grimm certainly misses it where he says, "The matter of living-rooms above cuts no figure." For many years before I moved to where I now live, I wintered my bees in the cellar under the house we lived in; and during nearly every one of these winters there would come times when I had to build a fire in this cellar to keep it warm enough, or else open the doors at night, or carry in snow or ice, or both to keep it cool enough. Several times it kept so warm that there was no snow or ice to be had, and the outside air during the night was warmer than the air in the cellar; then I had such a state of affairs as friend A. I. Root has often feared he might have were he to try cellar wintering—a time which "tried men's souls;" or, in other words, a time when there was a general "roaring," such as Query No. 95 wants to know about. At such times Query 96 is very pertinent; for in a perfectly dark cellar is our only salvation. L. C. Root says, in answer to No. 95, "The room should be so arranged and managed as to avoid these causes of uneasiness." If I were back to where I should be obliged to winter bees in that cellar again, I would willingly give him \$500 to tell me how to so arrange and manage in such times as spoken of above; for candidly I do not know how to do it. Since I built the special repository which I now have, which was fully described and illustrated in GLEANINGS of last year, the temperature inside, while the bees were in it, has never been lower than 40° nor higher than 48, with the exception of the winter when I kept the temperature up with the oil-stove, which resulted in almost a total loss, as most of the readers of GLEANINGS will remember; and since I shut off all ventilation, which Prof. Cook and others think necessary, as their reply to these queries would denote, the temperature has not been lower than 43° or above 46°. A properly constructed underground cellar, with no building above it, is self-regulating, and of itself sufficient to carry bees safely through the winter, no matter how much the temperature may change outside; and, if I am correct in my opinion, it will be the chief way of wintering bees in the near future.

Borodino, N. Y., Jan. 1, 1889. G. M. DOOLITTLE.

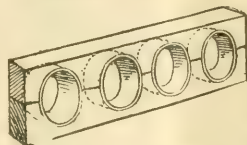
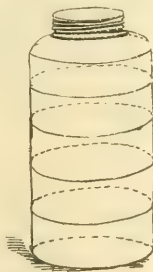
Friend Doolittle, I am very much obliged to you for having contrasted these two forms of wintering-repositories. As Captain Hetherington, P. H. Elwood, and others in their neighborhood, have made some careful and extensive outdoor arrangements for wintering bees, I should be glad to know if their decision corroborates this. If I had a sandy or gravelly side hill, I would start forthwith—yes, right in the month of January, to make such a cave as you speak of, for various purposes. I am a little surpris-

ed, however, that you maintain a temperature as low as from 43 to 46. The temperature of the Manitou cavern, away up on the top of the mountain, in the neighborhood of Pike's Peak, is 52°, winter and summer. I am going to have a lot to say about it before I get through with my Notes of Travel. Mammoth Cave, in Kentucky, is 56°. Perhaps you have told us the temperature of your cave in the summer time. If so, I have forgotten it. But I do not see how it can be below 50°, unless the outside temperature of the winters keeps it down. Can we have some reports from others who have caves and similar places? Would it do to shut up a cellar tight, in a damp clay soil?

GLASS SECTIONS.

SOMETHING FROM ONE OF THE FRIENDS ACROSS THE WATER.

DEAR MR. ROOT:—Will you kindly say if you noticed in an article in the *British Bee Journal* of the issue of Oct. 4, 1888, my remarks on glass sections. I shall be glad to hear what you and the Americans think of these. I might also say I have had some glass sections made from round honey-bottles. I took my glass-cutter and cut slices off the bottles, as shown in the accompanying sketch. It was difficult to cut the bottles, but I succeeded in making sufficient to try what I wanted. The black lines will show where the cutter was applied. I took two slices for each section, placed a small sheet of wax foundation between these slices, and, behold, the foundation was firmly fixed in a moment! Next each section was placed in a frame very similar to what was illustrated in GLEANINGS about six or eight weeks ago, and shown again herewith.



HOW TO MAKE GLASS SECTIONS.

I use Heddon's wide frames, and I had a frame made to hold four glass sections. These sections looked lovely. I had them beautifully sealed over—not a single "pop-hole" in any of them. The above block was made so that it could be pushed into one of Heddon's frames. Was it not curious, that a similar idea should occur about the same time to your correspondent Rambler and myself? He used strips of wood, or shavings, instead of glass rings. I think glass cells might be cheaply cast or manufactured, and they would look very attractive. I hope you will not say there is nothing like leather; wood sections are best because, etc. To clean the glass cells or rims, simply boil them—they may be used over and over again.

LANGSTROTH'S PICTURE.

Please do not tell Rev. Mr. Langstroth that I say the portrait on page 843 is one of a fine-looking man. I am sure America should be proud of the looks

only. I have seen very few finer-looking Englishmen. There is only one likeness that dwells in my mind, and that is Dr. Livingstone. Doubtless you will say Mr. Langstroth is too wise to be made vain.

T. BONNER CHAMBERS, F. L. S.

Tref Eglwys, Caersws,

Montgomeryshire, England, Nov. 20, 1888.

Friend B., we have noticed what you say about the glass sections; but unless it is for something fancy, or for a curiosity, we should pronounce them altogether too frail; and glass cut out of bottles, as you mention, is terribly dangerous stuff for almost anybody to handle. The objection to circular sections is the amount of waste space between the circles. If they are to be used, I think I should much prefer stiff paper or wood shavings.

THE APPLE-TREE BARK-LOUSE.

IT HAS MADE ITS WAY CLEAR TO TASMANIA.

LIKE GLEANINGS very much, especially the articles written by Prof. Cook. They are really instructive and interesting. I have his book, "Injurious Insects." We are sorely troubled in this part by the apple-tree bark-louse, *Mytilaspis conchiformis*. I have sprayed some of my trees three times with strong soapsuds, also with soft soap, and still I see some alive. It may be I am too early, and they still keep hatching out. Like yourself, I should like to know more than Prof. Cook tells us about this insect. It seems to be the female that becomes fixed to the bark. Can he tell us anything about the male, and what is the latest and best method of destroying this pest?

W. P. CLENNETT.

Port Esperance, Tasmania, Nov. 19, 1888.

Prof. Cook replies to this as follows:

As Mr. Clennett writes from Tasmania, it seems that even scale insects which are poorly prepared by nature to make journeys have circumnavigated the earth. In this case, man has doubtless carried this pest to the other side of the globe. How fortunate if we could know of such terrible enemies, and not, through our ignorance, scatter them to blight the prospects of our antipodes! This louse is now known to science as *Mytilaspis pomorum*. When the female is fully mature—August in Michigan—she looks any thing but animate. She is then but a mere scale, somewhat the shape of an oyster-shell, but slim, usually curved, and a little darker than the bark of the tree or twig on which she rests, and to which she is attached. This scale is only about one-fifth of an inch long. Late in August, if we carefully raise this scale with the point of a knife-blade we shall see what appears to be a white dust. When this is magnified we note scores of white oblong eggs. These eggs hatch early the following June. The young newly hatched lice are oblong, yellow, very small, and active. Soon these insert their long slim beak, or sucking-tube, and settle down on the tender bark, not on the leaves, as does the young tulip and maple bark-louse. These minute active lice may be blown from one tree to another, or may crawl on to the feet of some bird, and be carried to another tree. This is the only time in the life of the insect when it can be scattered from tree to tree. The louse, when once fixed, grows rapidly, becomes scale-like by a secretion, and by August is mature, and lays its

eggs. When numerous they are very destructive. I have seen many fine apple-trees ruined by them. There are very few if any males. The males of bark or scale lice that have been discovered are two-winged. It seems likely that there are often no males in this species, and reproduction is agamic, as in case of drone-bees. We see now how these pests may be carried from one country to another. If we carry the trees containing the lice at any season, we also must carry the lice.

The best remedy is to rub the trunk and limbs of affected trees with soft soap, or, better, a mixture made as follows: Heat one quart of soft soap or one-fourth pound hard soap, with two gallons of water. When hot, thoroughly stir in one pint of crude carbolic acid. By use of a cloth, with sleeves rolled up, thoroughly rub the twigs and trunk. Do not wet the foliage any more than is absolutely necessary. This is to be done just as the lice hatch, which, in Michigan, is early in June. In Tasmania it would be at a very different season. By carefully raising the scales we may easily discover the exact time. It is just when the white eggs begin to go, and the minute yellow lice to come.

Agricultural College, Mich.

A. J. COOK.

APIARIAN EXHIBITS AT FAIRS.

HOW THEY MAY BE MADE TO PAY.

I WISH to add a few words to what has already been said in regard to making honey-exhibits at county fairs. In looking over the answers to Question No. 79 as to whether it pays or not, I find the greater part of them are in the negative. Now, I have been taking some stock in county fairs this fall, more for the purpose of advertising than for securing premiums, as only one out of four which I attended offered premiums in the apiarian line, except for the best 5 lbs. of honey in the comb, which was not much of an inducement for premiums. I am confident that it has paid well for the time and money spent. While on the fairgrounds I took orders enough for honey, at remunerative prices, to amply pay me for my time and expense, besides building up a home market for all that I shall have to sell this season, and perhaps another. I am confident that the demand will increase. My display of honey was not large, but it was very fine, and attracted more attention than any exhibit in the halls, consequently the officers of the association insisted that I should come back again, and promised to add an apiarian department to their premium lists if I would send them a form of what was needed. This reminds me of friend Poppleton's suggestion; i. e., that you publish in GLEANINGS some of the best lists in the apiarian department, suitable for county fairs, for the benefit of those interested.

We did not get any surplus honey in this locality until Spanish needle and heart's-ease, or, better known here as smartweed (and perhaps both), began to bloom, which was about the 20th of August. Then as soon as the honey began to come in pretty freely our bees took the swarming fever, and then swarm they would, queen-cells or not, in spite of all we could do, till about the 10th of September. The consequence, as you may surmise, was a light crop of honey, which was quite a disappointment, as it was the first and only good honey-flow we have had for two years. I had two swarms on the 8th of Sep-

tember, which I put on empty combs, and they very nearly filled their brood-chambers with honey, and have an abundance to keep them through the winter. I also had plenty of drones flying the 1st of November, and I think they would fly yet if it were warm enough, as I am confident that a part of my colonies have not killed their drones yet. Is not this very uncommon as late in the season as this?

WILLIAM HUTCHISON.

Benton, Ills., Nov. 29, 1888.

Friend H., we are glad of your report in regard to exhibits at fairs, as well as of your late comb honey. If the winter is as mild with you as it is with us now (Jan. 12), it will be nothing strange if the bees should keep the drones until spring.

MAKING GARDEN IN JANUARY.

HOW MUCH OF IT CAN WE DO PROFITABLY?

WELL, friends, the field of operations for winter gardening is broadening and enlarging year by year—not only in Florida and California and other favored localities, but right here in the North. The list of seeds and plants, so far as my knowledge extends, may be summed up as follows: Asparagus, early beets, early carrots, celery, cress, cucumbers to some extent, lettuce, onions (especially the Egyptian, or winter onion), parsley, radishes, rhubarb, and last, but by no means least, spinach. Asparagus requires considerable preparation beforehand. We must get good strong roots by growing them in the open ground, and then by the first of January, or earlier, put our sash over them right where they stand. Beets, spinach, onions, kale, and other like hardy plants, that will grow at a very low temperature, can be started from the seed in cold-frames or cold greenhouses. If your locality is sheltered, and you have straw mats and shutters to cover the sash, quite a growth may be made in January, without the use of fire heat at all. As handling sash, mats, and shutters is laborious work, I would by all means, as soon as I could afford it, have a cold greenhouse. With the usual apparatus for raising the sash, one man can raise and lower one whole side of a greenhouse 11x30 in three minutes, and without working hard either. During this present winter we have been using three machines, made by Hitchings & Co. These machines cost about \$10.00 each, and I never enjoyed any work more than I do raising and lowering the sash to control the temperature. I do not have to call in any boys to help me, and I can leave the sash at any angle I choose, and there is no danger from being blown down by the wind, even if we have a very high one, for each one of the sash is held rigidly by means of iron rods, just where I leave it until I come around and choose to move it.

Under these sashes, without any fire heat at all, spinach, beets, and radishes have come up and made a very fair growth, and that, too, during the very shortest days in the year. I am especially pleased with the behavior of spinach under glass. It is about as hardy as winter rye, and seems to

grow all the time, when the ground is not freezing, even outdoors. Our main crop of spinach was planted out in the open fields, in September; and although it has had, up to the present date, Jan. 10, no mulching at all, the great bushy clumps of foliage are almost perfect. Some of the larger leaves have been frosted a little. Whenever the ground is not frozen we just go out and cut the roots off below the surface of the ground, throwing the heads into a large basket. It is then washed, and the poorest outside leaves pulled off, and then it is ready to cook. Cook it about as you would green peas, and I think it is almost if not quite equal to asparagus. We are retailing it in our town at 10 cts. a pound, and it is now selling at a very satisfactory rate. You may ask why I take the trouble to put it under glass, if it flourishes so well outdoors. Well, we are usually able to have it in nice order outdoors from Jan. 1 to the middle of February. After that, the frequent freezing and thawing often spoils it. By having a fine crop under glass, you can get it at any time when you can't get the other, and we are sure of it clear along into March.

Kale is raised and cooked very much like spinach. You can use your plants right from the cold-frame where they are grown, or you can have large heads started in the summer time, to be out during winter, from the open ground.

The Early French forcing carrots will stand about as much cold as lettuce, therefore in our locality it must be raised under glass. It is sold in little bunches, and is used for flavoring soups.

Now is the time to plant seeds of celery for your first crop. We prefer the White Plume; but we are this year making a test of the Golden Self-blanching. A good many ask why we commence so very early. My reply is, because we want to have the first in the market. Celery in June will generally command a good price, and I have never found the plants too large to put out in the field. Last year we had one bed of transplanted plants that were not called for when the plants got to be a foot high, and perhaps as large as your wrist. I feared they were too large to stand transplanting, but concluded to try them. When the celery was dug and put away in November, these plants had produced the finest stalks we had in the field. They bore the transplanting, and started right out to grow, quicker than any of the small ones; and it has been the case so invariably that we expect this season to do quite a trade in extra-early and extra-large plants. It is true, there has been some trouble with White Plume celery running to seed, when started very early. Here is a letter right to the point:

Mr. Root:—In a seed and plant circular received from you, you speak of offering for sale celery-plants from seed sown in January. Now, suppose a person were to purchase a quantity of these plants, and they were all to run to seed. A friend had his early planting (consisting of about 7500 plants) go to seed for two years in succession, while that from seed sown in the middle of March

made a fine crop. The point is, Has a customer any security at all, that celery plants grown from seed sown as early as January, will not go to seed?

Kingston, Pa., Dec. 12, 1888.

M. GARRAHAN.

Friend G., there is something about this business of going to seed that I do not quite understand. We have had some trouble in our own grounds, but not very much; but as extra-early plants are much more likely to run up to seed, we go over the field as soon as the plants begin to grow, and pull out every one that has started to send up a seed-stalk, as if it were a weed. The whole number of such in our early celery has never amounted to more than ten per cent. A few who have purchased plants of us have complained that the greater part of them ran up to seed. Last season we had one lot of Golden Dwarf celery of which a great part sent up seed-stalks in the plant-bed before it had been planted out at all. We burned up all the seed we had on hand, and pulled out all the plants that showed seed-stalks, and threw them away. As no more started to shoot up, we put the rest out in the field, and they gave us splendid celery. I wrote to the seed-grower who furnished us the seed, and he said the same lot of seed had given excellent results in the hands of others. From this and other similar reports I am inclined to think it is something in the treatment of the plants rather than the fault of the seed; but just what treatment makes celery send up seed-stalks, I can not tell.

If one were to *save his seed* from these plants that shoot up so prematurely, the seed would, without question, be worthless; but any seedsman who has any regard at all for his reputation would be careful that none of his seed come from this source. When I was visiting at Peter Henderson's two years ago, one of his neighbors told me they found the White Plume celery entirely worthless, because so much of it shot up to seed instead of making celery. He said his seed came from Peter Henderson. I think few if any of Henderson's other customers have experienced a like trouble.

Cress, or pepper-grass, can be sold in limited quantities along with lettuce and radishes, so as to pay a good price. It is also quite hardy.

Cucumbers and tomatoes can be raised in greenhouses, but it is something like strawberries, I opine. Few of us have a greenhouse that will give just the temperature and other conditions to make a success of it. Lettuce will do nicely in cold-frames, without heat, especially if you start in the last part of January or later. I suppose most of you will start your Grand Rapids lettuce during this month. The Grand Rapids and Boston Market lettuce are the only two kinds we have succeeded well with when grown under glass. One special quality of the Grand Rapids lettuce is its silvery whiteness; but this is better secured by the assistance of heat of some kind; for to have it white it must be grown rapidly. If you make a greenhouse 11x30 feet on the plan I have suggested, I would have a shed, with a permanent roof at one end. You will remember that our friend Eugene Davis, the

originator of the Grand Rapids lettuce, directs that the house be placed so as to run from the northwest to the southeast; then put your shed on the northwest end, and it will never shade the other part. Well, if you do not propose using fire heat, you can have some heaps of manure in this shed, for making hot-beds, and the fermenting manure will help keep up the temperature. By making your shed a little longer you can keep celery beautifully on the extreme north end. During warm weather, when there is no danger of frost, you can remove the straw that covers it; and by allowing it to grow slowly it will be fit for use clear into March. Opening and closing the ventilators of your cold greenhouses will give the celery the proper amount of air, and you are not likely to let the celery freeze if you watch your plants in the greenhouses. I presume a *hot-bed* would give finer Grand Rapids lettuce than you would get by any other means.

If you have any onions that trouble you by sprouting, plant them out close together in your cold greenhouse, and they will sell nicely for bunch onions in January and February. At this season of the year we get five cents for one-third of a pound of bunch onions; that is, we divide a pound into three bunches. A few clumps of parsley put into your greenhouse will give you small bunches for flavoring soups all winter long.

SUB-EARTH VENTILATORS.

DR. C. C. MILLER RECONSIDERS THE QUESTION
AS DISCUSSED ON PAGE 26.

AT the close of the Question Box for Jan. 1, the editor remarks, "Surely our veterans can get very much nearer the truth than the average beginner, who proposes to winter bees in the cellar, can guess at it." I think that applies to Questions 97 and 99. The beginner would be a little bewildered over the answers to 98. Of the twelve who reply, only five say they have tried sub-ventilators, and four of these five think them advantageous, while the fifth thinks them useless. Two of the 12 have never tried them, and give no opinion as to their merits; indeed, I suppose three may be counted in this list, if Dadant & Son be counted there. Of the remaining four who do not claim any experience with them, one thinks them not worth their cost; one thinks all the ventilation needed can be had otherwise; one thinks them objectionable if other conditions be right; and one is quite certain they are worse than useless. The editors say, "We hardly know how to account for the difference in testimony in regard to the value of these ventilators, unless," etc. Good friends, there is more difference in opinions than in testimony; for, if I mistake not, Doolittle is the only one who gives any *testimony* against them. It is only fair, however, to say that Prof. Cook, if I mistake not, places no value on sub-ventilators as a means of ventilation, only as a cheap means of regulating temperature.

The beginner, however, who reads over the replies will be likely to get the impression that it is of no great importance to pay any attention to the matter of ventilation; and friend Hutchinson, in a late number of the *Review*, specially devoted to

ventilation, concluded that his contributors agreed in that view, although I did not suppose my own contribution could be counted on that side. If a beginner, however, were to ask me about it, I should say that, although many were successful who paid no attention to ventilation whatever, yet the fact remained that ventilation must be considered a matter of vital importance. Very few would dispute this in practice, even if they should in theory; for many of those who pay no attention to the ventilation of cellars are very particular as to the ventilation of hives in the cellar. It requires very little reasoning to show that it is useless to ventilate a *hive* if the *cellar* be not ventilated. The only question is, Does your cellar take care of its own ventilation without any effort on your part? I suspect there is great difference in this respect. A cellar whose walls are full of cracks, or which are made of porous material, may receive through such walls enough fresh air to need no care from its owner. Even in that case it is possible that a sub-ventilator might pay well by way of keeping up temperature. If, with no special care, the temperature keeps up to 40° or 45° in the cellar, and the air is at all times fresh and sweet—and there may be many such cellars—then I should hardly consider a sub-ventilator advisable. But suppose the thermometer outdoors has the sportive habit of coquetting around among the twenties and thirties below zero, making the air in the cellar go down to freezing, then, although the air may be *pure* enough it is not *warm* enough, and it may cost a good deal less to warm the air by having it come through a sub-ventilator than to warm it in any other way.

Cellaring bees is practiced only where it is cold, and probably there is no reason for it, other than the greater warmth in the cellar. Where the winters never send the mercury below the freezing-point, no one thinks of cellaring. Even where the thermometer sometimes goes 20 to 40° below what is considered the best temperature for the cellar, outdoor wintering is preferred. Now, why? The answer probably will be, that the bees in such a climate will have a chance to fly at times, if outdoors, and in the cellar the confinement will be longer; and, besides, the bees will get too warm, and be uneasy in the cellar if the temperature gets above 50°. Yes, but it doesn't do the bees any hurt, nor make them uneasy, to have the thermometer go up to 55 or 60° outdoors, even if it is in the night, and they can't fly, and we can even up the other part by carrying out the bees for a fly every time the bees outdoors have a fly. No, the warmest advocates of cellaring, and those who insist that no ventilation is needed, would, I think, insist that, in a mild climate, even if you give the bees the same fly, and never allow the cellar to become too warm, they will winter better out. Now, if there is any other reason than because the air is better outdoors, will some one please tell me what it is? The fact is, there is a density of ignorance regarding the value of fresh air for man, beast, and insect; and I advise each one to experiment a little for himself and see if *his* cellar is one of the kind that lets in enough air when every thing is tight shut.

C. C. MILLER.

Marengo, Ill., Jan., 1889.

Friend M., in G. M. Doolittle's article in this present issue you will notice that he discusses cellars versus bee-caves. Well, his

bee-cave has an advantage over most cellars in having from three to four feet of dry dirt over the most exposed portion. This dry dirt is covered with a roof, so it is always dry; and there is enough of it so that no frost ever gets through to the bee-cellar. Now, I am inclined to think that this dry dirt overhead affords all the ventilation needed, and it may be the very best ventilation, therefore no sub-earth ventilator is used. In ordinary cellars, however, and perhaps in many bee-caves, the frost would get through enough so that a sub-earth ventilator might be of very great use in keeping down the temperature, as you express it.

In regard to your last point, as to why bees are better off outdoors than they are in the cellar, I should answer, For the simple reason that anybody or any thing having life is better off outdoors than in a cellar; yes, better off outdoors than in a house. Remember what I said about the health of the negroes in the South. Outdoors we have the kind of ventilation that God made; but in a cellar or in a bee-house, we have such as man provides. For a few weeks back, I have been having a great deal of enjoyment in manipulating the immense ventilators of our new greenhouse. Whenever the thermometer is above 40° outdoors, the large ventilators are swung wide open by the aid of the proper machinery. The consequence is, that my plants have had almost as good ventilation as if they were entirely outdoors all the while, and at the same time they have been protected entirely from the frost, clear up to the present time, Jan. 10. The plants have now an excellent color, and they are hardy and robust, but they do not grow nearly as rapidly as if I kept them warmer. The quality of my plants in the spring will certainly be superior; but our lettuce grows so slowly that we shall not have any fit to cut before February. I presume that, if the ventilation of the cellar were just as good as it is outdoors, the bees would stay in their hives, and behave themselves just as well as they do outdoors; and I think I have wintered a hive or two in the cellar when they were just as quiet, and stayed in their hives just as well as those out of doors did; but when I had a large number in the cellar, especially when some of them were rousing strong colonies, they crawled out of their hives and smelled bad, and acted fearfully; in fact, the only way I could keep them in their hives was to make the cellar so cold as to freeze them back when they came out at the entrance; and a good many times they would come out, even with the temperature below 40°. They acted just as if they came out and died, solely to be contrary. I don't believe that I ever want any more bees in the cellar, here in our locality. By the way, Ernest has one colony of bees in a Heddon hive in ^{his} cellar, during this unusually warm winter. The Heddon hive is so shallow he did not like to risk it outdoors with the frost. Well, they are wintering nicely so far, and they behave themselves nicely, and as well as the bees do outdoors. Of course, he keeps the cellar dark.

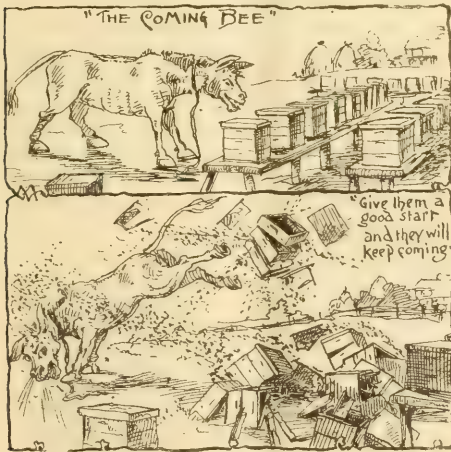
DOT GOMING BEE.

BY EUGENE SECOR.

I schpect you haf read of dot zhust goming bee
 Vhat dose Yankees haf got poorty kvick,—
 Dose bees vhat run ofer my sehlow Zherman blacks,
 Und nefer kvits vork gause dier sick?
 I dinks, when I hears of dose schmart Yankee bees
 Dot zhust vone vill be all vat I need,
 Begause dem haf dongues like dot schmall honey-
 bird,
 Und suck up vone kvart mit a feed!

But Yankees, dem brag of dier goundree so pig,
 Und dier bolidics so *awful* much,—
 Of dier horses vhat run mit der lightnig away,
 Und dier peautiful vimins, und such,—
 Dot I more dan twice believe ven dot bee *does* been
 gome
 He'll schpeak so ve Deitchers gan read;
 Und if him don't got to be all ofer plack,
 I dinks him vill *show der plack seed*.

But I laffs ven I reads of dot schmart goming bee,
 Ven I dinks of Hans Brinkerhoff's mule—
 (Hans vas mine neighbor zhust ofer der vay,
 Vere him lives mit der golden-like rule).
 Vell, Hans him leadt oudt dot donkey vone day,
 An der pump to gif him some drhink,
 Ven up zhump vone pig in der mua mit der trough,
 Und oudt skibbed dot mule in a vink.



Und schtraight mit der bee-line, und halter to boot,
 Dot donkey, he schtart for mine lot
 Vere a hundred bee-boxes schootd all in some rows:
 "Mebbe dems oats"—und mebbe so not—
 Ven all at vone dime him schtopped at vone box,
 Und schmelled a loudt schmeil in dot hole
 Vere dose bees make dier honig und likewise wax—
 You den should hear dot schmile him schmole.

But dot olt king-bee vas daking vone schleep,
 Und vas mad ven dot racket him hear;
 He tought er prass pant had zhust broke out loose,
 Or some oder loudt noises vats kveer:
 So oudt him send scouds to see vat vas up,
 Und den der grant circus vas gome—
 Der more of dose bees vot go for dot mule,
 Der kvicker dot mule don't go home.

Ven tree or four hundert glimbed into dose ears,
 Dot donkey, him right apout face,
 Und lifted vone foot, und den lifted two,
 Like one horses vat wanted some race;
 But he don't gone pack to dot dear old home
 Vere Hans vas been calling so sweet,
 But he lifted dose boxes so handy und kvick,
 Und gave dem a good schtart—mit his feet.

But dot goming bee vas arrived all der dime,
 Und gloser dan vone broder schtiks
 Aroundt dot donkey vot hadn't got learned
 To nefer kick against der pricks.
 Dot donkey, him laff on dot oder mout side,
 Ven him gets all him vants of dot fun;
 Him gry like vone *baby*, und rolls mit der grass,
 Und den him zhump up und home run.

Dot donkey, him svelt oudt like Zhumbo vas vide,
 Und I dinks Hans don't go to feed
 Him any more oats so long as him liffs
 To make him so fat as he need.
 Und I peelf dot Hans vill gome ofer und buy
 Dose bees vot is petter dan gorn
 To fat up dose mules, und make dem home schtay
 Gondended und tame mit der barn.

FIXING FOR HONEY-EXHIBITS AT FAIRS.

DR. MASON GIVES US SOME IMPORTANT SUGGESTIONS AND DIRECTIONS IN THE MATTER.

FRIEND ROOT:—I have received several inquiries, within the past few days, for suggestions in regard to exhibits of bees, honey, etc., at fairs, and plans for buildings for such exhibits; and as each one seems to be a reader of GLEANINGS, I thought it would be a good plan, for me at least, to reply through GLEANINGS, if "Barkis is willin'."

Only one, Mr. J. C. Graham, of Missouri, has inclosed a stamp for reply. I should very much dislike to be obliged to feel that bee-keepers are "stingy," but it has become quite a nuisance in my case. I am a busy, poor man, and don't care to give my time, furnish paper and envelopes, and pay postage, for the privilege (?) of answering correspondence that is of interest only to those who ask. "So, there now."

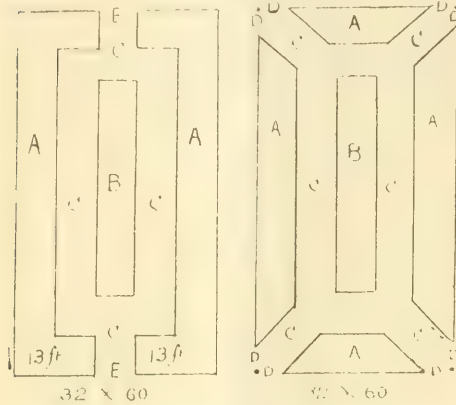
At some of the large fairs a separate building for the use of bee-keepers seems to be a necessity. At others, plenty of room can be had in buildings with other exhibits. In some localities where there are large fairs, there are not enough bee-keepers interested in a honey-exhibit to make a respectable display.

The size of a building will depend upon how large an exhibit is to be made. The bee-keepers' building at the Ohio Centennial last fall was 36 x 80, and was just right; but had the past season been a good one for honey, it would not have been one-fourth as large as needed. At our Tri-State Fair here at Toledo, the space usually occupied is equivalent to about 6x70 feet.

For a building, I should prefer one from 30 to 36 feet, wide and as long as would probably be needed. An exhibit of from 500 to 600 pounds of extracted honey in glass, with Muth's honey-jars and other small glass receptacles holding from half a pound to three pounds, can be made to occupy a space of 6 or 7 by 20 feet, if put on shelves, and

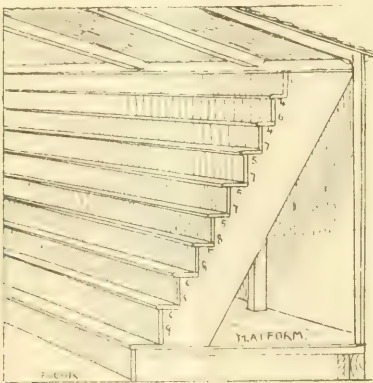
from 400 to 500 lbs. of comb honey in one-pound sections in crates would occupy the same space. More could be used to good advantage, and less could be made to do nicely, very much depending upon the taste of the one arranging the display. A building 60 feet long would accommodate only six such exhibits.

A building modeled after either of the following diagrams will be found quite convenient and satisfactory.



DIAGRAMS OF GROUND PLANS FOR AN EXHIBIT BUILDING.

In each diagram, A represents platforms 2 feet high and 7 feet wide, boarded up from the platforms to the ground or floor; B, platforms 6 feet wide and 1 foot high on which to exhibit extractors, hives, etc; C, passageways 6 ft. wide; D, doors, $3\frac{1}{2}$ to 4 ft. wide; E, double doors, each door 3 feet wide. All the doors are to be hung on the sides of the building, and open out. The doors at D are to be fastened to the posts, by hooks on the inside. One door is to be furnished with a lock, so as to be fastened from the outside if desired. Under the platforms A, should be several doors, so that boxes, etc., in which honey has been taken to the fair may be safely stored away out of sight.



ARRANGEMENT OF SHELVING FOR HONEY-EXHIBITS IN GLASS.

The sides of the building should be 8 or 9 feet high above the platforms. Eight feet will do nicely, but 9 feet will give room for a display of honey-plants, flags, etc., on the walls back of and above

the honey. Light should be admitted through large windows in the roof. For this size of building, 4 windows, about 5 feet wide and 6 feet long, would be about right. The windows should be so arranged that bees can escape at each end; for if there are any bees in the vicinity, many of them will be sure to get into the building. The platforms should be made very firm and solid, for honey is quite heavy, as every one knows.

At the Ohio centennial it was left for each exhibitor to arrange his exhibit to suit his own fancy, and every one put up shelving; but a portion of my exhibit was on a pyramid. If shelving is used for extracted honey, a very good way is to make some "risers," as shown in the engraving below.

Place the foot of the riser about 2 feet from the front edge of the platform, and have the first, or lower shelf, 18 inches* from the platform, and so on as shown. Board up under the lower shelf, but not under the others, unless preferred. When complete, cover all with strong white paper, or muslin. The top of the risers will be a foot more or less from the side of the building, and can be supported there by a piece of board.

If any of the exhibitors live so far from the exhibition grounds that it is inconvenient or impossible to go home each night, and they wish to curtail expenses, and have a good time, just take along a straw tick and some blankets; fill the "tick" with straw on the grounds, and make a good bed behind the shelving. If still more independence is desired, take along a good-sized box, filled with such things as will "minister to the wants of the inner man;" and if you are not happy it won't be my fault, for "I've been there," and know how it goes; for although I live but a mile from our Tri-State Fairgrounds I sometimes stay in the building over night with the exhibitors for the sake of the visit. As the time is near at hand when the premium lists are made up by the officers, or others in connection with the management of fairs, it is important that some bee-keeper in each locality see to it that the bee-keeping industry be not overlooked. Look well also to the matter of a judge, or judges. At every exhibition of bees, honey, etc., that I have attended, I should have been willing to have the exhibitors act as judges, and I believe there are not many competent judges who have not been good exhibitors; or perhaps it might better be put this way—not many good exhibitors who are not good judges.

Auburndale, Ohio.

A. B. MASON.

Now, look here, doctor. I don't want you to abuse our friends because they don't put in a stamp. Make your answers to all such queries and forward them to us, and we will credit you enough for your trouble to cover postage, and may be a little something more. We want the friends all to understand, however, that they are not to expect a reply—they must look for it through the bee-journals. Where a direct reply is wished for on some pressing matter, they should by all means inclose a stamp—or, better still, a stamped envelope. If the question is a brief one, inclose a postal card directed to yourself, and then say in your letter, "Please reply on the inclosed postal card." And I think it is an excellent idea.

* The engraving at this point is not strictly correct. The first step should rise 18 instead of 9, as shown, and should retreat more from the edge of the platform.—[Ed.]

for people who ask many questions, to have some postal cards printed, with their addresses on them. Even a busy man will seldom refuse to take a pencil and scratch some kind of an answer on a postal.—Your suggestions in regard to fixing for honey-exhibits at fairs are excellent, and I do not know of anybody in my whole circle of friends who is better prepared to make suggestions than yourself.—Your concluding remark is tiptop. It gives us a glimpse of the good time coming, when there will be no more quarreling about who ought to have the premiums, and calling hard names.—We should be very glad of some more suggestions in regard to arranging for honey-exhibits at fairs, with simple sketches to illustrate the plans.

THE TIGER BEETLES.

A CURIOUS LAW IN MIMICRY.

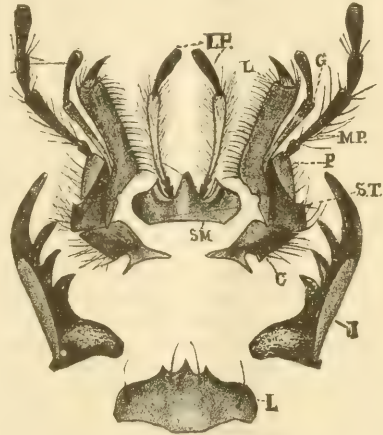
I AM receiving so many kind words regarding my articles in GLEANINGS on general entomology, that I feel very much pleased, and encouraged to go on. As we often say, the time seems ripe for just such articles. If I can do a little to incite people to observe and study nature in its wondrous insect forms, and especially to interest children in such study, I shall feel that I have done a good work. In this article I propose to kill three birds with one stone: I shall describe one of our most common and interesting families of predaceous insects, the tiger beetles. I shall, by means of excellent figures, make it plain just what a beetle is; so that no reader need ever again confuse them with bugs, which I have recently described in GLEANINGS, with admirable illustrations. I shall also present a picture of insect structure which must awaken the interest of all, and prove that the bee, wonderful as it is, does not monopolize structurally all the marvels of the insect-world.

The tiger beetles are those sprightly wide-awake forms resplendent with hues of drab, white, and green, that shine with a metallic luster, which are so often seen in the bright sunshine of midday, springing up before us as we walk in the path or meadow, pushing on to alight again a few feet in advance of us. The one here shown (Fig. 1) is our most common one, *Cicindela vulgaris*. It is a beautiful dark beetle, almost slate color, with a purple reflection, marked as shown, by graceful curves of

TIGER BEETLE, MAGNIFIED TWICE.

rich cream. Below it shines with green and purple. Indeed, in grace of form, agility of movement, and beauty of coloration, it is hard to find anything in nature more interesting than some of these tiger beetles. These beetles illustrate very strikingly the curious law of mimicry. Those that rest on the sand, eagerly wait-

ing for their prey, are drab, slate-colored, or purple, and thus by their color alone are concealed from their victims; as the weasel in his winter robes of white, or the arctic fox, is hid by the snow on which it treads. Others of these tiger beetles rest in the grass, and are brilliant green, so no eye can detect them till they dart away. This adaptation through color is exceedingly interesting, and far too common to be mere accident. The walking-sticks which I described recently are green when young, and rest on leaves. As they become mature they are gray or brown, and rest on twigs, and so in both cases are protected by their color. Nor does this law cease with the lower animals. The modest retiring girl is as surely protected by her neat and unpretentious apparel.



MOUTH PARTS OF TIGER BEETLE, MUCH MAGNIFIED (FIG. 2).

The grub of the tiger beetle lives in a hole in the ground. It has terrible jaws, and rests just at the surface, ready to dodge down at the beck of danger, or to seize its prey as some unwary insect strolls across its burrow. By very carefully approaching one of these holes we can get a good view of these terrors among insects. The least noise, and they drop down quite out of sight. If we then put a straw in the hole they soon push it out as they again crowd up to the mouth of their dens.

The beetles (Fig. 1) are also fierce and savage, and so the name "tiger beetles." They are well fitted to capture and tear in pieces even the largest insects. Let us take a peep into their mouths and see how well they are armed for their work.

We count that man the biggest who does the most and acts the best; hence to measure a man we place our mental tape-line on his brain and heart. These predaceous beetles are to conquer, kill, and eat. Their mouth parts are their weapons; their legs their armor. Like the ground-beetles, we see they have an armor—their long legs (Fig. 1), which deserves admiration. Their legs are also aided by powerful wings. Let us now examine their weapons. Though we may not look a gift horse in the mouth, it is all right to gratify any such curiosity in case of a dead tiger beetle.

I do not know that tiger beetles ever kiss, or speak guile; but I am sure that they have lips that might do both were "they made that way." We

admire lips of cherry red. The tiger beetle has one of finest white. The upper lip (Fig. 2, L) is called the labrum. Notice its white color, and the three points in front. Those points would hardly be the thing if kissing were in vogue among tiger beetles. I suppose this upper lip serves as does our own, to keep the food in the mouth.

We next note the terrible jaws (Fig. 2, J). There are two, sharp, and armed with cruel teeth, and moved with tremendous muscles. Observe that these, like the jaws of all insects, move sidewise. We call these the mandibles. These are to catch and crush their victims; and the tiger itself is not better armed for such work. Alack the day for the poor caterpillar, when it and these jaws attempt to occupy the same space at the same time! But this is not all: Our tiger beetle, like other insects, has a second pair of jaws—the maxillæ. These are more slender, but far more complex and nimble than are the mandibles. Just note how they are armed with points as sharp as needles. I imagine that, while the jaws hold the insect-victim, these second jaws play back and forth like a trip-hammer, piercing the body as by scores of sharp needles, and literally making hash of it. The base, or hinge joint, of this, C, is the cardo; next comes the stipes, S, and then the three lobes from within the locinia, L; the galea, G, and the maxillary palpus, M P. The piece at the base of the palpus, P, is the palpifer. But, why so many parts? May they not be the hands that do the stirring and turning in this wondrous hash-mill or sausage-cutter? But, why does not the food fall out while it is thus twisted and turned? Below is the under lip—the labium. This is just opposite the upper lip, but is thrown forward in the drawing so as to show. This labium has a base, sub-mentum, S M, and two jointed pieces, L P, the labial palpi. Note the three spines which, like sled-stakes, would tend to retain an overload. The labial palpi, like two fingers, may aid to retain the food or to move it about. Thus we see what a marvelous structure this mouth is. How different from that of a bug, which is only a sucking-tube! The beetle, then, is higher than the bug, as shown by its more complicated structure, just as the bee, the wasp, and the ant, are higher than both. We see that the form of the beetle is also peculiar, and not easy to mistake.

These exquisite drawings were made under my direction by one of my students, Mr. A. B. Cordly. Agricultural College, Mich. A. J. Cook.

NOTES FROM THE SHARON APIARY, SYRIA.

FRIEND BALDENSPERGER TELLS US MORE ABOUT THE ORANGE-BLOSSOM HONEY, AND SEVERAL OTHER THINGS.

MR. ROOT:—I always read GLEANINGS with interest—of course, what is good and applicable for ourselves. I never followed the section question very closely, because in our place it is of no great avail. We never tried exporting sections, fearing the great danger of having every thing arrive in a muss after 10 days tossing about by the sailors, who are not good hands to handle such goods. No heed is taken of "This Side Up, with Care," etc., on tops of boxes. We therefore hold fast to the extractor, and extract as often and as much as possible. This year was nothing in the line of extracting. After a dry win-

ter, the orange-blossoms failed, almost; we then had a still drier summer, full of east winds, which dried up every suggestion of dampness, both in the ground and in the flowers. In Europe they all complained of rain, rain, rain, while we here must call it sun, sun, sun.

COLONIES TO THE SQUARE MILE.

Much has been said in GLEANINGS as to the number of hives per square mile. When I read the article of Mr. E. France, in Jan. 1st GLEANINGS, I was rather discouraged, for we had 68 hives on one spot, and our range is only the Jaffa gardens, containing very nearly 500,000 orange-trees, it is true; but then, such a number of hives located all on the same spot! I thought the bees might all visit the next gardens, and thus lose time. Now, this is a problem which some more experienced bee-keeper might answer: "Do bees of the same hive visit the same tree or the same row of trees? Do they fly in one direction?" I am inclined to think so. In 1882 I had a hive of bees which propolized the combs all over with a brown gummy propolis which they gathered from a peach-tree, not very far off; the other hives had none at all. But as to gathering honey, I can't tell of any experience, as it is always a difficult task to follow bees of one hive, unless you use the "strewing meal" system, which I never tried, except in a few cases of robbing. Do you think that bees of a hive, finding a party busily at work on a group of trees, will continue to hunt for some unexplored ones, and then keep going to that place, owning it by the right of having been the first to take possession?

Now, very likely we have not the best locality for bees, neither could we put our hives anywhere else, as only here orange-groves are to be found, and thus we could not distribute them as you would to different basswood ranges, but must keep them all here. We could divide the number of hives, and set each apiary in an opposite direction. The bees would not interfere; but, unfortunately, this year failed, so I can not find out, and must try again another year.

Going through the gardens in former years, we very seldom saw a bee here and there lost among the millions of white flowers, and we always take it as a good "omen" where we find very few bees, for then we conclude the secretion is abundant, and no reason for bees to overcrowd.

In the mountains, again, it is different. Agricultural progress restrains our fields of operation, as we depend on wild thyme, growing on uncultivated land; and as the nomadic Arabs living in the Judean wilderness advance, thyme goes back, and then the question arises, How many hives to a square mile in such a locality? for a place crowded with orange-trees certainly is far superior, and can support a greater number of colonies of bees than the same extent covered with thyme. When going over the fields I noticed great numbers of bees on the same shrub, and at once concluded that it was either a failure altogether, or too many hives were on the same spot. When I say "going over the fields," I ought to say scrambling up and down the rocks of the steep and barren-looking mountains of Judea. It is only lack of earth that has not turned all into cultivated terraces. Centuries have passed over these uncultivated slopes, and the heavy rains have carried all loose earth down the valleys. The increase of inhabitants at Jerusalem and Bethlehem has demanded a great deal of lime and wood. The

lime-kilns are a great destruction to the forests, if such they may be called. Although strict orders from Constantinople have forbidden the cutting-up of trees and roots, still the work of destruction is going on, and before long it will be difficult to find the traces of where once stood oaks, pines, carobs, or terebinth-trees. The shrubs also are disappearing; and if no stricter measures are taken by the actual government, it will be the task of the future conqueror of Palestine to restore it to what it might have looked like in the times of the kings of Israel, and then under the Romans; later, under the Crusaders; thus bee-keeping will suffer by the carelessness of the authorities as well as the communities that help the authorities in the line of completing the destruction.

PAINTING HIVES.

The subject of painting hives interested me. Our hives were painted, some red, others white, others blue; and placing the same colors in a row it had a good effect, and young queens easily found their way by marking the one they left. Surely bees see the color; for, taking away a hive, the bees coming home fly to the next hive having the same color as the one taken away, no matter if another hive of a different color be nearer the place where the removed hive stood. By migrating, the hives being placed beside and upon each other, and rubbed all the night through by the tossing movements of the camels, a good deal of paint is rubbed off, so that two seasons, or hardly three, is all our hives can bear. They must be repainted for outside comfort; and, besides, we are of the opinion the sun warps up unpainted hives. The light colors are the best, and bees feel more comfortable in them. The 10,000 hives on page 141, and 10,000 dogs, 142, that ended with the *tracks* of a dog only, I compared with our difficulties with the Turkish government—a land of “baksheesh” (gratification), where every thing can be done provided you “smear the hands,” as we put it. A few years ago the tax-gatherer, finding our “improved hives” got more honey than the clay pipes, pretended to tax our hives ten times the value of the native hive, and would hear no explanation whatever till the question was solved by the usual method, and only the tracks of his enormous demands were left. This year new difficulties arise. It seems as if the Turks were taking advantage of the continual war preparations in Europe to take us to task. Of course, when matters get too serious we are backed by our consul.

QUESTION NO. 39, MARCH 1.

Honey gets a better taste after some weeks. The orange and thyme flavors are more pronounced; but I am astonished that none of those eminent bee-keepers can tell us any thing about the wax-moth, in trying to keep comb honey from one year to another. Does sulphuring the combs not injure the flavor? With us, no combs could be kept without occasionally sulphuring; or are you not troubled with this pest? I should want P. Benson's worm annihilator to keep them off (page 258). Egyptian bees have been known and handled by very few. Although they have a bad name, we can not strictly rely on such experiences, as no modern apiarist ever tried to raise good-natured ones, or, so to say, weed out the furious ones. Cyprians, claimed by Mr. F. Benton to be the best-natured bees, have received the greatest attention, notably by himself; still they have led Mr. Abbott, in the *British Bee Journal*, to say, “I had time only to put the quilt

on.” Now, all Eastern bees are very irritable and difficult to handle, at times; but are we not living in a time when people are trying to overcome all difficulties, and especially using our senses as to what method we had better resort to, to obtain the result we are aiming at? for since we don't keep a certain race of bees as a hobby, but as profit, why not wear gloves, if such be necessary, to provide against the unpleasant infliction of too many wounds, if the Oriental races be acknowledged as superior, both as honey-gatherers and as being more prolific? The man who was cornered, page 294, April 15, about having seen comb manufactured, reminded me of a German here who would call our nice granulated white orange honey “sugar syrup,” because he heard we fed the bees sugar at times, and concluded the grains of sugar were still visible in the syrup. We are glad at times to sell off our honey at a reasonable price, and have hardly any time and would have no sale for adulterated honey; besides, we have to explain over and over again to such unbelievers, and often to no apparent avail.

I am of the opinion that bees know the place exactly where the hive stands; for on a flat plat of ground, with no trees, and very often no grass or flowers, bees still take exactly the direction of their entrance-holes, and do just exactly as the bee in Dr. C. C. Miller's apiary does—“goes back and tries again, if its bearings were not right.” Our hives are placed differently, according to the plain or mountain. In the plain, the hexagonal system is adopted, the hives being about seven feet apart from each other (2 meters); if space enough, they are set at three meters, about 10 feet, apart; and, as already remarked above, bees fly to the hive of the same color standing next to the hive taken away. I will not stand up to say bees can count, but they very likely put into their memory before leaving the apiary, especially when it is the first time, “Well, I dwell in second, third, or fourth hive, in the first diagonal white row.” Now, I hardly ever think a bee misses its house and street for its neighbor's. Moving the hives in June, I went to an olive-grove 10 miles from here, and there placed the hives round about the trees, working west before noon and east after noon, thus having shade almost all the time; and to work in the sun with the thermometer marking 95 and 122° F. is fearful, yet it must be done. I like to see a well-ordered apiary, rather than letting them stand about in every direction; but I think we can easily correct both, as two trees planted in the same line, and in the same soil, under the same care, will still grow up to look somewhat different; and to the bees' small eyes, no matter how tiny the difference may appear, they'll be sure to make it out and find their sure way.

BEE-STING REMEDIES.

Page 499 tells us about a bee-sting remedy. Oil always did good to wounds, as we read in the parable of the good Samaritan, who put oil on the wounds. It was very surely olive oil that was meant. Now, the greater part of bee-keepers find need of it; and, being stung, occasionally the poison gets inoculated into the whole system, making the body at least swell. Saliva is the surest remedy with me, and it is always carried about by everybody; but very likely it depends on whether the part stung is very fleshy or not; for then the swelling dissipates, whilst in a bony region the swelling is better seen. The pain differs according to time

of day, whether stormy, place where stung, and, particularly, the temper of the bee. Having had many hornets to kill this year, I was slightly stung by one on the arm near the pulse. It was very painful, and swollen. I thought I was swell-proof; but I had to apply some spirits of camphor to the wound. Will Professor Cook kindly tell us in what proportion the different formic-acid-possessing insects are to each other, and whether scorpions and myriapods have the same principle of poison. We often find them here under hives. The sting of a scorpion is very severe. By a sting I got in the thumb, the pain traveled all along the arm, and seemed to settle all round the shoulder and side of the breast where I got the sting; and on one occasion, I was bitten by a myriapod (forty feet) on the shoulder, through the woolen shirt. I suffered from both about three days.

PH. S. BALDENSPERGER.

Sharon Apiary, Jaffa, Syria, Nov. 7, 1888.

Friend B., we are much obliged for your very full report. It seems a little singular that you should get honey from orange-blossoms in Jaffa, while in California they furnish little honey or none at all. Very likely the peculiar circumstances of the country have much to do with it. I am inclined to agree with you, that the bees from one hive do, as a rule, work on some particular tree, or in some particular locality; but I am not satisfied as to just how they manage to follow or keep track of the inmates of their own hive. Under such circumstances as you mention, it probably is well to keep 500 or more hives in one location. I have changed my mind considerably since I saw the large apiaries of California, and heard of the large yields; but I still think there are few localities outside of California where apiaries of more than 100 hives can be kept profitably in one place. The mountain thyme that you mention is probably a good deal like the mountain sage of California.—As you state it, there seems to be a positive advantage in painting hives different colors. Any kind of dark color, however, is objectionable in our locality, because it absorbs the rays of the sun, and becomes so much hotter than a hive painted white.—Surely you can get relief from the unreasonable taxation you mention, can you not? Our proof-reader suggests that it is only the same thing over that happened in the time recorded in the Scriptures. When Christ came on earth he found just such extortion in the collection of taxes as you mention; and, dear friend, is it not true now as it was then, that there is no permanent complete remedy except the spreading of the gospel in the hearts of men?—The oriental races of bees are not acknowledged with us to be superior as honey-gatherers. They are, however, acknowledged to be more prolific. Are we to understand that you get honey from olives also? In California I saw vast orchards of olives.—It seems, friend B., you still have faith that spirits of camphor helped the hornet-stings. It is so natural to go for the camphor-bottle, that a great many of us, perhaps through the force of habit, feel better when we see the bottle in some friendly hand, accompanied by friendly words of sympathy, and the refreshing and

perhaps reviving aromatic smell of the camphor.—So you were actually bitten by a thousand-legged worm, were you? It is true, you mention that it had only *forty* legs instead of a thousand; but the fact that you suffered from its bite several days rather, upsets some of Prof. Cook's statements. Will the professor please explain?

THE SEASON OF 1888.

SELLING HONEY; SOMETHING ABOUT COMMISSION MEN.

AS I'll have to tell it any way, I may just as well say right now that the failure of our honey crops in the two last seasons has taken about the last bit of enthusiasm out of me. The season of 1887 was poor, but 1888 was a total failure, so far as getting surplus honey goes. I have 100 colonies, all in good shape to date.

They have been having good fights for the last three days. Their winter stores consist almost entirely of honey that is as black as ink. I am satisfied that, should they be confined to their hives for a period of six weeks or two months by cold weather, there will not be a bee left to tell the story.

After two weeks of bad weather during this month, there came a warm day when the bees flew out, and the hives were spotted with dark excrement, worse than I have ever seen after a long winter's confinement. It might be urged that this poor honey should have been taken away, and, instead, sugar syrup given. As an excuse for this palpable negligence, I will say that here our main reliance for honey is clover, and this has been almost annihilated by the summer drouths of this and last season, which made the prospects for a year or more ahead unfavorable. In our judgment, we should not be justified in going to much trouble and expense to save the bees. If a few days occur through the winter, offering opportunities for cleansing flights, our bees will come out all right; but if they all die I shall not feel so badly after all, as I console myself with the fact that I can purchase honey from the commission dealers for about the same money that it costs to produce it in our locality.

Why can we buy honey from commission houses for less money than it can be had of the producer? This question I put for the sole purpose of opening the eyes of bee-keepers of a certain class. For the first time, this fall I have handled a good deal of honey on commission. You see, I am getting somewhat into the commission harness; and this being the case you will bear with me if I say some plain things about dealers. Although I had not a pound of honey this year, I have been selling more this season than ever before, a greater part of it being purchased from dealers, and some I have handled on commission. At the beginning of the season for selling honey I wrote to perhaps one hundred bee-keepers for prices of honey; but as their prices seemed too high, I began to look to dealers in honey to supply me, which was done at very satisfactory prices.

"How can this be?" you ask. I will tell you just how this is done. It is one thing to produce honey; but to sell to the advantage of the producer is another and quite a different thing. Now, it is surprising how many successful honey-producers we

have; but how few who can dispose of their crop to the best advantage! Those who produce good crops, and fail to sell in their own markets, or have no home demand, ship to city markets, and employ dealers to handle their honey. Once out of their hands, they are at the mercy (?) of their commission dealer, and this explains why I can buy honey from dealers for less money than I am asked by the producer. Do you hear?

I have bought tons of honey this season from commission men, at low prices, and have made more money handling it than I would have made had my own bees produced a good crop. Hence you will see that it is not in my own interest that I write as I do about this matter.

I nearly double my money on the honey which some of you bee-keepers produce, and that, too, after commissions, cost of packages, freights, and numerous other expenses have been taken out—out of your pockets. How do I succeed in selling such quantities of honey at such good prices, you ask?

Looking at the manuscript for the above, I am reminded that I have even now exceeded the limit of space the editor will feel like according me; but I will say, if it is the desire of GLEANINGS that I shall write another article in the near future, on the subject, "How to sell honey," I flatter myself that my successful career "along this line," as Doolittle would say, would be beneficial to many who sell honey at a price incommensurable with the cost of production.

J. A. BUCHANAN.

Holliday's Cove, W. Va., Dec. 27, 1888.

Friend B., you have struck on a very important point, and we shall be very glad indeed to have you continue the subject. If I understand you, however, the reason why you are enabled to get honey at these low prices is because of the shiftless way in which many send their honey to commission men. Now, *we* are not in the commission business; but a good many bee-keepers do send us honey, and beeswax also, without telling us how much they sent; and, in fact, a good many times I do not believe they knew themselves. Sometimes they send it in, and do not say any thing at all. Most of the time we have stray boxes of wax waiting until somebody writes about them. Well, my advice would be this: Don't any of you send any honey at all to a commission man, nor to anybody else, without first writing to him, and asking him to tell you, as soon as he can, about what he thinks it would bring, giving a description of it. Better still, send him a fair sample of the lot, and let him tell you about what it will probably realize. Then when the honey is sent, tell him exactly how low he can go, and give positive directions not to sell cheaper. If he finds that he can not sell it at the price you put on it, he will advise you and you can decide to come down a little if you choose. If he writes back to you that the honey was received in bad condition—broken and leaking—if the quantity is considerable, and you are not too far away, it will pay you to go and take care of it. Fix it up, and peddle out the smashed honey yourself. You will probably make better wages at it than you can at any thing else. By so doing you will have a better opinion of commis-

sion men generally, and I am inclined to think they will have a better opinion of us as bee-keepers.

THIRD LETTER ABOUT MRS. LUCINDA HARRISON.

HER HOME LIFE, ETC.

I STARTED out to write these letters about Mrs. L. Harrison, because every bee-keeper knows her and would like to hear about her; but in reading them over, it seems that I have been writing all the time about Mrs. Chaddock, and that Mrs. Harrison comes in only *incidentally*. There are too many big *I's* in them.

I think all the bee-keepers' wives who read Mrs. Harrison's letters wonder if she is a good house-keeper, and sews on buttons and things, just like other folks. Well, she is, and she does. She has a small house, and it is as clean as a new pin, and is *always* just so. She hires a woman to come once a week and sweep her house all over. She gets rusk (a kind of light biscuit with a faint trace of sugar in them) at the bakery; she hires her washing done; and, of course, she has no milk to care for, nor churning to do, as farmers' wives have. She hires most of her sewing done, and her house-cleaning—in the spring and fall. She puts in her time cooking, washing dishes, writing for the press, working with the bees, running the lawn-mower, going to Sunday-school conventions, old-settlers' meetings and bee-conventions, and she is the most jolly woman that I ever met. Some people have *qualms of conscience*. Mrs. Harrison has none; and her cheerfulness and light-heartedness are contagious. I want to hold her up as a beautiful example for *all wives* to follow.



MRS. HARRISON AT A SUNDAY-SCHOOL CONVENTION.

When her husband came home the first night I was there, she ran to meet him. She had not seen him for a week; then she introduced me. Mrs. Harrison does not scold—not a bit—but just laughs. If the stove smokes, she laughs; if her husband gets in a hurry for the breakfast, she laughs. All the things that most women are put out about, she only laughs at; and if there is any one thing that impressed me more than another in Mrs. Harrison's daily walk and conversation, it was her *great cheer*

fulness. It is easy enough for well people to be cheerful; but when a woman is not well, it must require some effort to be cheerful. After this, whenever I get the blues so badly that I think I am going to die, I shall leave, and go and stay two weeks with Mrs. Harrison. She has a motherly sort of way of talking to me that does me good. She is a splendid cook, and all her knickknacks taste good. She broils her beefsteak, and it is juicy and sweet. She cooks apple sauce to perfection; and her tea and coffee are unexcelled. She uses a bright-red table-cloth and fringed napkins.

Her bees are in the dooryard—some of them close up against the house (when I was there; I suppose they are in the cellar now), and the hives are close together—not more than four inches apart, I think, and are painted some indifferent color.



"SHE PLANS HER WORK BEFOREHAND."

Mrs. H. has a large dooryard, filled partly with fruit-trees and grapevines; the grass is kept short all the time, with the lawn-mower, and they have walks to go everywhere. Mrs. H. is a great manager. She plans all her work beforehand, and thus saves time and strength. Her home is plainly furnished—about like the well-to-do farmers who live about here, and they have no fancy dishes on their table. They have several farms out of town, and the money comes rolling in; but what are they going to do with it? I can not imagine. I know what I'd do with a part of it, if I were in Mrs. Harrison's place. I'd have a good big house built, and have it warmed with steam, with a bath-room where folks could swim, etc.

Well, well! Mrs. Harrison is a beautiful character; and the very next novel I write I shall put her in. I think I shall have her figure in the "Cheerful Mother-in-law," because mothers-in-law have been slandered, and called cross and hateful, from time immemorial.

MAHALA B. CHADDOCK.

Vermont, Ill.

My good friend, we are exceedingly obliged to you for this home glimpse of Mrs. Harrison. Some of us might be afraid to have you pay us a visit, if you are going to write us up in that fashion. I am afraid we should not enable you to make so good a record. In regard to building a good big house, take Mrs. Root's advice, and—don't! We manage a good deal as Mrs. Harrison does, about sweeping and washing; but we have decided that a larger house than one needs, is a misfortune. Mrs. Root even now longs occasionally for our old little home, or

for one like it, such as Ernest and Maud have across the street. Fathers-in-law and mothers-in-law are excellent things to have, just a little way off—say across the street. A house large enough to have several families under one roof is good in theory, like tenement bee-hives; but I believe that most of those who were so enthusiastic about tenement hives have come back in favor of each colony in a hive by itself. "Every tub on its own bottom," you know.

BEES AND NEIGHBORS.

NOT BEE-LEGISLATION, BUT EXCLUSIVE RIGHT OF TERRITORY BY PURCHASE.

THE only fair and just way for a man to get the monopoly of the bee-business in any locality is for him to pay each farmer or lot-holder within the flight of his bees a certain sum yearly, not to keep any bees on his property. If a law could be had, selling rights to any one person to keep bees in a given locality, then only the rich or well-established apiarist could secure the rights. The poor widow or cripple or broken-down professional man would not dare to keep bees within a certain limit, because the Honorable Mr. Moneybags had bought the local right for a few paltry dollars. Lazarus could not keep bees within three or four miles of Dives' residence. The poor widow could not earn a mite for the Lord's treasury by keeping bees, because some Pharisee had bought the township-right.

Any law giving one person advantage over another is wrong. According to the plan at the beginning of this article, the widow wishing to keep bees need not sell her right, and the law would not take away her right. Any person should have the right to keep a few bees, or as many bees as he chooses, provided his bees do not harm his neighbors or passers-by, and are not a nuisance.

Just here I should like to say, no man has a right to keep bees in a town if his bees *really* annoy his neighbors. By annoy, I do not mean make nervous people fidgety. No one has a right to keep chickens to scratch his neighbor's garden; neither has he a right to keep bees where they will sting his neighbor's children. Bees are bees, and bees will sting. Whenever my bees become a nuisance I will move them out of town. Our neighbors have rights as well as ourselves.

The same principle applies to foul brood. That disease should not be treated with anything except the furnace. It should be burned, destroyed, root and branch, upon its first appearance. We owe this to our neighbors as well as to ourselves. "Do unto others as you would have them do unto you." You would not like to have a neighbor tolerating and treating foul brood within the flight of your bees.

Last spring I selected two colonies, about equal in queens, strength, and in good condition. Over one I used a slatted honey-board and a T super. Over the other I used half-depth wide frames, with no honey-board. The one under the T super swarmed out without touching the sections. The one under the half-depth wide frames stored me fifty or sixty sections of surplus comb honey. The honey-boards seem to remove the surplus boxes too far from the brood-nest in a poor season, when honey is scarce and comes in slowly. I think the

bee-space between half-depth wide frames should be $\frac{1}{2}$, the same as the sections, thus leaving no little line along the edge, to be propolized.

Once this summer my bees started booming on something. I could smell the honey ten feet or more from the hive. I supposed it was red clover. Upon investigation I found no bees on the red clover, but found the common burdock in bloom, crowded, roaring with bees.

I fixed my bees for winter November 3, and wore my overcoat while doing so. I believe they have had only one day's good fly since then.

PHILO S. DILWORTH.

Pittsburg, Pa., Dec. 19, 1888.

Friend D., your point is a good one. Go to your neighbors all round about you, if you are located in the country, and get them to sign a paper, agreeing not to keep bees under a certain number of years. If they have no notion of keeping bees any way, the greater part of them will be glad to assist you by signing the paper, without pay. Those who keep bees already, and especially if they are not doing much with them, will perhaps sell out reasonably, and, for a small sum per year, give you the sole privilege. You could easily make a canvass of your vicinity—say covering the land within two miles of you in each direction, to see what it will cost you. If too expensive, don't go into it; but I think that many of the friends could easily in this way secure the right to keep bees, without any unpleasantness or unfriendliness. Where real estate is transferred to a party, I suppose a paper could be drawn up, making the same regulation hold, even after the transfer. If your bees boomed on *burdock*, it seems to me it is something of a reflection on the farmers in your locality.

BEEES AND CANNING-FACTORIES.

A BEE-KEEPER OBLIGED TO GO OUT OF THE BUSINESS.

I RECEIVED the last number of GLEANINGS a few days ago, and I am sorry to say that this must be really the last number I shall get of my most favorite journal, as I shall be out of the bee-keeping business by next spring, and, of course, shall have no further use for a bee-paper. The business of keeping bees, at least around here, is (to use a common expression) about played out. The last two seasons were very poor indeed. Last summer I got absolutely nothing from my 80 swarms; and when there is a good season (as we had two years ago) I have to sell the very best of white comb honey in pound boxes for 10 cts. a pound. That is for less than I can afford to raise it. But in spite of these discouraging prospects I should have kept on, hoping for better times in future, if I had been left undisturbed by outsiders, and if a certain institution that has sprung up in my neighborhood had been built somewhere else. The institution I have reference to is a factory for canning fruit, that was built last spring, a few rods from my home, and that turned out to be the ruin of my bees. As soon as business was started up (canning pine-apples in June), my bees went there in perfect swarms, to be drowned in sugar syrups, or to be killed in some way; and in a little while my best colonies were so depopulated as to

be perfectly useless. To prevent my bees from getting into the building by putting wire cloth before doors and windows was not possible, as part of the rear of the main building, where they unload fruit, is all open, and I had to try the next best thing I knew of; viz., to shut them up in their hives. I hurriedly made frames, covered them with wire cloth, put those on top of the brood-frames, shut the entrance-holes with wire cloth, allowed the bees to fly about an hour before sunset, and shut them up again late in the evening; but in spite of all this trouble I could not save them, for great quantities of them worried themselves to death in the hives, and it proved just about as disastrous to them as to allow them to go and meet their fate in the factory. Although the proprietors of the factory behaved to me like gentlemen, at least this last season, there is no way of telling how they might act if this nuisance should keep on; and it was indeed a great nuisance to them, as I saw myself.

Aside from having my bees ruined every summer, I run the risk of being involved in a lawsuit by and by; and as the canning-factory, to judge from the large and substantial buildings erected for the purpose, seems to be a permanent affair, there is only one way left to me—give up keeping bees in the future. I know I shall feel dreadfully lonely without the dear little creatures; but I have to submit to it.

CHAS. KLIMITZ.

Batavia, Genesee Co., N. Y., Dec. 21, 1888.

Why, good friend K., why should you abandon bees, because your locality seems to be just now a bad place for them? Dozens of the friends in California, have been in the same predicament; but instead of abandoning the bees they simply moved them to a locality where they did not annoy anybody else, and usually they have succeeded in getting a place where enough more honey can be secured to cover all the expense of having an apiary away from home. During the honey season, where the yield is good you can arrange to have a sort of summer residence with your bees. Then you will be right in fashion. You can shut up the house during the hot weather; and instead of going to the seaside, or to some popular resort, you can go and live with your bees and get good pay. I would much rather move the bees to some other locality than to try fastening them up in their hives. I am inclined to think the latter course will always turn out about as it has with you.

SECURING COMB HONEY.

MILLER VERSUS DOOLITTLE ON THE MATTER.

AS I am very much interested in the discussion now going on between friends Doolittle and Miller, I thought I would put in a word in favor of them both. The subject they are discussing is not exhausted, by any means, but is, in fact, one of the most interesting that has occupied the pages of GLEANINGS for a long time. As to the real point at issue between two old and experienced bee-keepers like Miller and Doolittle, there will not be much left to quarrel about, I think, when they fully understand each other's positions. There is so much to be taken into consideration, that neither the tying-up plan nor Mr.

D.'s side and top storing plan will succeed under all conditions. Now, whatever works satisfactorily in a country where the honey-flow comes at an unnatural time of the year, as it does in Cuba, when the bee-keeper has got to work every way he can think of to get his bees in condition to take advantage of the early flow, that way is the best. Then comes in Mr. Doolittle's plan; i. e., have your bees when the honey-flow comes. But will the tiering-up plan work in the case of a long honey-flow? No, for you will not get the best results in that way, for too much time is wasted in capping the honey; too much heat is wasted by adding more room. Now, there is where friend Doolittle is right, according to my experience—keep the bees compact and warm; for never, in my experience of five years in Cuba, did I find that I had my bees too warm. We always had them snugly tucked up under enamel cloths, and in tight hives. How far you can carry the expansive plan of managing bees for surplus, is a point that can be decided by circumstances only. Just what those circumstances are at all times, I would rather some one else would tell than I. My experience with colonies in managing them for extracted honey is to keep them warm; give no more room than they can occupy, and have *nothing* between the brood and store combs; nothing to hinder the free passage of heat from the brood-chamber to the surplus department, *right directly over the brood*. But in case a colony is not strong enough to occupy two stories, very good results can be secured by confining them to the brood-chamber, and working them on the side-storing plan.

What Mr. Doolittle says about the dry-goods box, I can hardly agree with; that is, if we take a dollar-and-cents view of it. Let friend Doolittle, next spring, take 1 lb. of bees and put them in a dry-goods box; then put the same amount of bees in a hive with a division-board all tucked up warm, and report results in the fall. I contend that more honey can be secured by keeping the bees crowded and warm than by giving them lots of room and compelling them to store what they can in old dilapidated hives. Now, how many bee-keepers do you think judge correctly of the proper condition of their bees when they open a hive? I fear too many think their bees need more room when they are in just the right condition to do the best work. A friend said to me last summer, "Aren't you afraid your bees will swarm?" I said, "No. If they want to swarm, I let them do as they like, but seldom more than once, and that does very little if any harm." As I said at the beginning, I want to see this subject properly discussed: "The giving of more room when the bees do not need it."

San Diego, Cal., Dec. 13, 1888.

A. W. OSBURN.

THE CORRUGATED HIVE-COVERS.

FRIEND REESE REVIEWS THE MATTER.

I WAS so thoroughly imbued with the idea that I had hit on the best water-proof hive-cover, and only positive relief from swelling from bee-stings, that your comments on page 766 were more than a surprise to me—especially when you object to the weight of the corrugated iron. Let us review the matter a little, and see if there is not more merit than you have discovered. One square foot of standard corrugated iron, painted,

weighs $\frac{7}{16}$ of a pound, or a little less than $\frac{1}{4}$ of one pound. A piece 18 inches wide and 24 inches long, which would cover a Simplicity hive nicely, projecting over each side about one inch, and far enough over the front to protect the entrance from much rain, snow, or hot sun, would weigh just $2\frac{1}{16}$ pounds, and cost just 12 cents, all painted and ready for use. Now, when you take into consideration the fact that no other cover, is really needed, it is not so expensive or heavy after all. I put the sheet of corrugated iron right down on the enamel cloth that covers the sections or frames, and lay any old boards on top as a protection from the hot sun, and to keep the iron in place. When winter comes we will take it for granted we use Simplicity hives, just set an empty brood-chamber over each colony. Over the frames put a piece of old carpet or a felt or straw mat; on this, in turn, put four to six inches of planer shavings or sawdust, or a chaff cushion, and over the whole the corrugated iron cover. This will admit sufficient circulation, and we may rest easy so far as protection is concerned. For a chaff hive which must be kept dry, well, you can see how it is yourself. If you will turn to page 15 of Dr. Miller's "A Year Among the Bees," you will see his "tolerably light cover" weighs $5\frac{1}{4}$ pounds, and costs from 20 to 25 cents. How does the comparison strike you?

I now prefer the $\frac{3}{8}$ -inch corrugations, and send you herewith a sample with the maker's name. It would be quite a job for the majority of people who keep bees, to fit tin to their old leaky covers, tack it on and paint it.

The bee-sting remedy, you will please understand, is simply to make a slight cut, merely passing through the skin, just where the bee-sting entered, and allowing the alkali to come in direct contact with the poison, causing neutralization at once, and the swelling does not take place. The incision made with the knife can scarcely be noticed a few hours after, and is not painful, as the flesh is not "dug into" as you term it. In a recent number of one of our bee-journals some one suggests the use of the hypodermic syringe to inject an alkali into the venomous parts, which is certainly a capital idea if we could have at hand, as convenient as our pocket-knife, the little expensive syringe. My two little boys, four and five years of age, invariably come to me when they get stung, to get the soda water put into the stung place on their bare feet, etc.; and when I am not at home when they are stung, they always swell, and regret my absence.

J. S. REESE.

Winchester, Ky., Nov. 9, 1888.

Many thanks, friend R., for the sample of your corrugated iron. It will no doubt answer splendidly; but in our locality it would be blown off by the winds, and they would get smashed and battered up, so we should be obliged absolutely to hitch them fast to something. Another thing: If anybody should sit down on a hive, or even if one hive were rested on top of another, they would be pressed out of all shape. I do not believe I should like them nailed fast to a wooden cover. In that case the tin we already use would be cheaper, and I think rather preferable, because it is smooth on top.—Cutting into the flesh with a knife, in order to get the alkali in contact with the poison, may be a positive remedy. I am

afraid, however, that I should conclude, if I tried it, that I could not see any very great difference.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

WINTERING A HIVE ON A SUMMER STAND WITHOUT A BOTTOM.

WHILE I was at the convention at Albany last winter, a gentleman, I do not remember his name (he was on the platform at the left of the president), said that his hired man had a hive of bees in a box hive, standing on four posts three feet high, with no bottom in the hive, and it stood outdoors all winter, and the thermometer had been below zero several times during the winter, and that the hive of bees came out better in the spring than his own bees that he had put in his cellar, as he supposed, in the best possible shape. He was asked by some one in the convention if the hive was high enough so it did not get snowed under, to protect it from the wind. He said it was about three feet from the ground, and did not get covered with snow, but that the whole bottom of the hive was open all winter. Now, my theory is that there was no condensation, as the temperature outside and inside of the hive was nearly alike, except, perhaps, in the cluster of the bees a little warmer. I also think that there was no circulation or current of air, but instead there was a penetration of fresh air, or, in other words, the air formed an equilibrium of temperature by penetration of the free and open bottom of the hive; and when there was a change in the temperature outside, there was a corresponding change inside also. As I am only a novice in bee-keeping, I will not make any suggestions.

West Troy, N. Y.

A. E. CLUTE.

Friend C., I can not recall to mind now the name of the gentleman you mention, but perhaps some of the other members present can do so. Through the back volumes of our bee-journals we have had a good many reports such as you give; but instead of having the whole bottom of the hive open, I think the effect would be still better if they had an opening from four to six inches square. To prevent mice from getting in at this opening, it had better be covered with wire cloth; and when we get down to it, a good-sized entrance properly protected with the cloth, in such a position that it is not likely to be closed up with snow or ice, pretty nearly fills the bill. In fact, I have always favored the idea of having the bees enter the hives from under the bottom. A Simplicity hive, pushed forward on its bottom, gives us just exactly this kind of entrance. Now, after having fastened the hive so it can not slip forward on the bottom-board, tip it up as illustrated on page 25 of our last issue, and you have an opening that lets all the dead bees fall out, and gives every advantage of a hive without a bottom. If you put wire cloth over this large entrance, however, to keep out the mice, the dead bees can not fall out as they would otherwise. Some years ago the matter was pretty strongly talked up, of

having hives as tight above as they could possibly be made, and no bottom-board at all, during the winter time.

SIZE OF SECTIONS, AGAIN; M. A. KELLEY RENEWS THE MATTER WITH DR. MILLER.

Please allow me to thank Dr. Miller for his able reply concerning the "size of sections;" also to answer his question, "Why does the $4\frac{1}{4} \times 4\frac{1}{4}$ section seem to you too small?" Simply, sir, because, in ordinary seasons, it will not hold one pound. I tried to make this plain, as a careful reading of my letter will show. To call it a 1-lb. section is a misnomer, and to sell it as such is something worse. True, as you remark, no size will give uniform weight; but the variation should embrace 1 lb. between its extremes. But how is it with the so-called 1-lb. sections? With me they average from 13 to 15 oz. only. Taking 2 oz., then, as an average variation, it should be from 15 to 17 oz., thus giving some chance to strike a general average of one pound. In giving your experience with various widths, you stop short with 8 to the foot. Tell us how much your 7 to the foot and 6 to the foot or $1\frac{1}{2}$ sections weigh. Did you ever have a single super of the sections in question in which they would average 17 ounces each? Have you not had hundreds of supers of the same size of sections in which they would average not more than 15 oz. each? Doubtless your own experience will indicate the truth of my assertion, that the $4\frac{1}{4} \times 4\frac{1}{4}$ is too small. This may seem to be, but it is not, a small matter. Giving good weight maintains a good reputation, which is no small matter.

Milton, W. Va., Dec. 31, 1888.

M. A. KELLEY.

Friend K., you seem to overlook the fact that the Simplicity sections are made now of a good many different widths. I believe I put the first Simplicity sections on the market that were ever heard of. They were arranged so that eight would fill a Langstroth frame, and, as originally made, they were plump two inches. Now, without separators, and as I first used them, they average more than a pound. The same sections with separators average a trifle less than a pound; but as it is entirely out of the question—at least, so far as I know—to produce sections weighing even very nearly a pound, we always sell them by weight; and if we sell them by weight we are just about as badly off to have them run *over* as to have them run *under*. To be very exact, perhaps we should not call them "one-pound sections." Giving good weight maintains a good reputation, no doubt; but I do not believe it advisable to give very much more than a pound. Honey is sold by weight the world over, so far as I know. In California they sell apples and potatoes and coal, and almost every thing else, by weight; and I think it would be well if we should follow their example in many things.

IS HONEY VINEGAR AS GOOD FOR PICKLING AS CIDER VINEGAR?

Reading the articles in regard to honey vinegar in November and December GLEANINGS moves me to make some inquiry of the feminine portion of GLEANINGS' readers concerning it. I will first state that we have for a number of years made

considerable vinegar from waste honey, to which we added some fruit juices, as currants, grapes, etc. In making jelly I put cold water upon the pulp left after squeezing out what juice I want for the jelly; and after straining it, put it into the vinegar-barrel, together with the skimmings from the jelly. This gives a beautiful color and flavor to the vinegar, which can not be surpassed for table use; but I find that, while I can make very nice sweet fruit-pickles by using the usual amount of sugar, I can not make good vegetable pickles, even by the use of sugar. The pickles are delicious when first made, but soon the vinegar turns white, and, if neglected, a heavy coat of mold will be found on the top. I have never experienced this difficulty when cider vinegar was used, and I desire to know whether others have found the same difference between vinegar made from honey and that made from cider.

EMILY E. WEST.

Flint, Mich., Dec. 14, 1888.

My good friend, we have had considerable experience in the use of different kinds of vinegar for pickles. Yes, *sad* experience. Now, while cider vinegar will perhaps keep pickles longer than vinegar made of honey, or water sweetened with the residue from making maple sugar, etc., our experience is, that no kind of vinegar, except a high quality of white-wine vinegar, is suitable for keeping pickles any length of time. Cider vinegar does very well where the pickles are used up before warm weather comes in the spring; and *very strong* cider vinegar may keep them through the summer; but with white-wine vinegar, that costs something like 30 cts. a gallon, we can keep pickles year after year. Perhaps cider vinegar may be so treated and so concentrated as to keep pickles safely through several months of summer weather. It may be, also, that honey vinegar that is *very strong and sharp* might answer.

JAPANESE BUCKWHEAT NOT AS GOOD A YIELDER OF HONEY.

Japanese buckwheat yields three times as much as the silverhull, and it is two weeks earlier; but the bees do not work on it so well as they might if they had nothing else. I do not want to raise it for the bees.

WHITWOOD FOR HIVES.

I think that whitewood makes the best hive and the best frames. The bees like whitewood the best of any kind.

My bees have done well this summer. They have made 1700 lbs. of honey. THOMAS OBERHITNER.

Deshler, O., Dec. 3, 1888.

CAGING SURPLUS QUEENS DURING WINTER, OVER STRONG COLONIES.

Can I get a book on bee culture, from which I can learn how to save queens sure, during the winter months? I mean queens for which I have no use in the fall. If so, have the kindness to give the name of the book and the price. J. GLANZMANN.

Altus, Ark.

We might refer you to our A B C of Bee Culture; but neither that nor any other book that we know of would give you any *sure* method by which you could preserve queens alive when separated from the cluster, either by caging or otherwise. We have caged queens over a strong colony of bees

where there was already a reigning queen, perhaps one or two months during the winter. We never had any yet that survived until they could be made use of in the spring. A month or six weeks is as long as we could keep them after confining them in the manner explained.

HONEY FROM APPLE-TREES: 54 LBS. IN SEVEN DAYS, BY ONE COLONY.

Mr. Doolittle, in his review of your A B C book, says that apple is a great yielder of honey, and my experience during the past season has convinced me that he is right. I joined your A B C class of bee-keepers in May, 1887. I then bought three colonies of bees for \$18.50. I increased them to 6, and got 330 lbs. of comb honey. I wintered them without loss, by packing in chaff, 10 to 12 inches on each side of the hive, and about 18 on top. I opened them April 1st, and found that brood-rearing was well under way, but I thought they had too much honey (about 30 lbs. per colony), so I extracted the outside frames and placed them in the center of the brood-nest. I then covered them very warm, and fed the honey back to them slowly. They increased very rapidly, and I think those hives contained as many bees May 15th as they have at any time since. I had one colony which stored 54 lbs. of apple honey in seven days; another one filled 24 sections in four days, and then swarmed and made a good start in their new hive before apple-bloom was gone. I did not have a colony which stored less than 10 lbs. of apple honey in the sections. Sections of empty comb, when filled with apple honey, were sealed almost as soon as filled; and I doubt if even *you* could distinguish them from newly built combs. There was but little clover, and they worked only three days on basswood. I got 300 lbs. of comb honey, and increased my 6 colonies to 17. When September came my colonies were light, and the brood-nests were nearly empty. I fed them 300 lbs. of sugar, so I did not make very much; but I am not at all discouraged. I have gone into the business to *stay*, and I shall stay whether I succeed or not.

If you can read this, you will do well. I wrote it while lying in bed with a broken leg.

Gilead, Mich.

D. E. WEAGE.

Friend W., I have long been aware that apple-trees often produce enormous quantities of honey. There are several obstacles in the way, however, of getting such a yield as you mention. One is, the bees are seldom strong enough to take advantage of it. Quite a few times, when we happened to have powerful colonies during apple-bloom, we have had quite good yields. I feel sure, however, we can, if we choose, have at least a few rousing colonies during apple-bloom. The other trouble is, and perhaps the worst of all, that the weather is oftentimes very unfavorable for gathering honey from apple. In fact, I have known bad weather almost through the entire apple-bloom period. Then there are seasons when apple-trees do not blossom very much, and also when a profuse bloom gives little or no honey. I think it is well, however, to prepare ourselves as well as we can, especially when we are in a locality where apple-trees are plentiful. If we could find a spot protected by tall forest-trees, or, better

still, ranges of hills, something like the mountains of California, we should stand a much better chance of securing apple-bloom honey; and in locating an apiary I think I would consider well the matter of apple-bloom.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 100.—*a. What is the lowest temperature, Fahrenheit, that you usually experience in winter in your locality? b. How many days is the mercury below zero, Fahr.?*

a. From 18 to 30°. b. From 20 to 40.

G. M. DOOLITTLE.

a. 20 to 30 below zero. b. I do not know.

GEO. GRIMM.

a. 20 to 25; b. probably 40 days. DADANT & SON.

a. 20° below zero. b. Not over 25 on an average, I think.

JAMES A. GREEN.

Usually about 15° below, occasionally 20° below. b. From eight to ten; some winters more, some less.

P. H. ELWOOD.

a. Usually about 16 below zero. b. 10 to 20. Occasionally a winter when the mercury does not go below zero.

H. R. BOARDMAN.

15 to 18 below zero, ordinarily, but the past four winters have been severe, the mercury going as low as 28 and 30 below. b. I have kept no record.

MRS. L. HARRISON.

We have had the mercury 24° below zero during several winters, and five or six years ago the mercury was in the twenties below zero for almost two weeks.

CHAS. F. MUTH.

a. In 1872 and 1885, the coldest was 15° below zero; 1873 and 1884, 14° below; 1875, '79, '86, 12° below; 1880, '83, and '87, 10°; in 1874, '77, '78, '80, and '81, 2° below. b. Usually but one day, very seldom more than two or three.

DR. A. B. MASON.

In this locality, 42 north latitude, we consider 15 below zero as extremely cold, although we have had 30 once or twice. We frequently get through the winter with nothing more than zero, or 5 and 6 below.

JAMES HEDDON.

The lowest is about 18° above 0. As a general rule we don't have more than 20 freezing days in a winter, although I find that our winters are more sensitive than in the North, on account of the continual changes from warm to cold. I have seen the four seasons in 24 hours, and that nearly every winter.

P. L. VIALLO.

Seldom more than 16° below zero, and seldom more than two or three days at a time. My answers to the general questions are in the main from experiences gained in Central New York, where the mercury often falls to 30 below zero for a week or more at a time, at intervals during four months or more.

L. C. ROOT.

a. In my old locality in Northern Iowa, the thermometer usually goes as low as 33° to 37° sometimes during each winter. b. I can not answer this

question accurately; but one winter the thermometer was as low and lower than zero every day during the entire month of January. I think that my locality was as cold as that of any other contributor to your Query Department, and we made chaff-hive wintering as much a success as did others with their cellars.

O. O. POPPLETON.

My location is Ohio, near the Michigan line. My own weather-records cover eight winters, and show as follows:

Winter of 1880,	'1 lowest,	-16°;	below zero	14 days.
" " 1881,	" " "	5°;	" " "	None.
" " 1882,	" " "	14°;	" " "	11 days.
" " 1883,	" " "	-29°;	" " "	11 "
" " 1884,	" " "	-26°;	" " "	31 "
" " 1885,	" " "	-10°;	" " "	9 "
" " 1886,	" " "	-17°;	" " "	8 "
" " 1887,	" " "	-10°;	" " "	7 "

E. E. HASTY.

Dr. Miller gives us below some figures from the Illinois State Weather Service, the observer, Mr. J. W. James, being a neighbor of his.

The average of the lowest temperatures of the past 27 winters is 21° below zero. The lowest I have recorded here is 31° below zero, Jan. 5, 1884. The average number of days below zero, in 28 winters past, is 17. Greatest number, 38, winter of '84, '85; least number, 3, winter of '77, '78.

I have been meteorological observer here since Oct., 1860; meteorological observer to Smithsonian Institution, May, 1869, to Dec., 1873; voluntary observer of Signal Service, U. S. A., Jan., 1874, on; observer Illinois State Weather Service, 1877, on.

The above includes the three winter months, December, January, and February, only.

JOHN W. JAMES.

Dr. Miller adds :

From the above, I suppose the answer is—*a.* 21°, *b.* 17. This certainly is warmer than ordinary thermometers make (I've seen it down to 37°), but it ought to be correct.

C. C. MILLER.

My impression is, that Question *b* was not understood by all who answer. For instance, friend Hasty says there were seven days last winter when the thermometer was below zero. Now, I think he means there were seven days when the thermometer was below zero for perhaps half an hour or more. Others have evidently counted the number of days when the thermometer remained below zero for fully 24 hours; and in our locality that seldom occurs during any winter. A self-registering thermometer hangs on our porch, and the register stands now where the mercury left it last winter—just a trifle below zero. For a short time, mostly during the night, the mercury was down about zero, but I think not more than about seven times during the winter. During this present winter we have yet had no temperature lower than eight above, and that only once. Now, where these lower temperatures are of only transient duration—say an hour or two—bees or any thing else seldom suffers very much; but where we have a continuous week of weather below zero, especially if accompanied by high winds, then look out for your bees, cellars, greenhouses, cold-frames, etc. We are very much obliged indeed to friend Hasty for his accurate record. We notice that, in the winter of 1881 and '82, the lowest temperature was

five above. Friend Hasty's record would, I think, answer very well for Medina. At the present time both radishes and celery are growing in the open ground that have as yet received no injury. They are, however, protected by buildings. Now, this latter point is a very important one. In California, people have hunted up localities protected by mountains, and in some cases they are nothing more than moderate hills, and these hills furnish sufficient protection for raising all kinds of tropical plants and vegetables. In Salt Lake City we had very pleasant weather—no frost; but when the train brought us to a notch in the mountains where the northeast wind swept through, the ground was frozen wherever the wind struck; and on the northeast side of the mountains we found the ground frozen hard, and covered with snow. Are we making sufficient use of the hills we have, for protection in a similar way, for our bees and gardens?

QUESTION 101.—*What method of wintering prevails in your locality—that is, outdoor or cellar wintering?*

Both.	DADANT & SON.
Cellar.	P. H. ELWOOD.
Cellar.	A. J. COOK.
Cellar.	C. C. MILLER.
Cellar.	DR. A. B. MASON.
Outdoor.	MRS. L. HARRISON.
Outdoor, generally.	CHAS. F. MUTH.
Outdoor, generally.	L. C. ROOT.
Cellar wintering exclusively.	GEO. GRIMM.
Outdoor wintering is almost universal here.	
JAMES A. GREEN.	

The prevailing method is indoor, especially among the most advanced bee-keepers.

H. R. BOARDMAN.
Outdoor, as it is seldom that the bees are three consecutive days without flying. P. L. VIALON.

About half in cellar and half on summer stands, most apiarists using both methods during the same winter.
G. M. DOOLITTLE.

Both are commonly practiced here. During our severest winter those did best who wintered indoor; and during mild winters it was just the other way.
JAMES HEDDON.

The few old-style bee-keepers still winter outdoors mostly. Those who are up to the times, most of them, winter in cellars, I believe. As for myself, I winter mostly out of doors.
E. E. HASTY.

In my immediate locality in Iowa, chaff-hive wintering was mostly practiced, and was most successful; but a short distance away, in localities where the soil was of a different nature from what it was where I lived, cellar wintering was in most use.
O. O. POPPLETON.

I hope you will excuse me, friends, for saying, as I read over the above answers, I can not help thinking that those who answer are perhaps unconsciously prejudiced a little in favor either of cellar or outdoor, as the case may be. Friend Hasty says that, in his locality, which is about the same as ours, a few old-style bee-keepers winter out of

doors mostly; then he adds, with characteristic frankness, "Of whom I am which." Now, it is not at all unlikely that I too am prejudiced. I do not believe that, in our locality, nor in friend Hasty's either, it is profitable for the average bee-keeper to undertake to winter in the cellar. Friend Heddon gives a wise suggestion in regard to his locality. Then to get at the truth of the matter, the question arises, Which occurs oftener—mild winters or severe ones? Friend Poppleton succeeded with chaff hives, just as we do; and his report of the severity of the winters in Iowa is perhaps as bad as any who have answered. His remarks in regard to the soil refer, I presume, to its adaptability for constructing wholesome cellars. A cellar in a sandy or gravelly soil, especially if it is in a side-hill, is certainly much better than a cellar in level, wet clay soil.

QUESTION 102.—*What is your average consumption of stores per colony, as nearly as you can estimate (if you can not give exact figures), from October to May? State whether this average is for cellar or outdoor.*

25 to 30 lbs. for indoor wintering.	H. R. BOARDMAN.
For outdoor wintering, about 18 lbs.	JAMES A. GREEN.
15 to 25 lbs. I winter outdoors always.	CHAS. F. MUTH.
About 15 lbs., indoors; 25 lbs. outdoors.	L. C. ROOT.
40 pounds for out of doors; 30 pounds for cellar.	DADANT & SON.
I think about 15 to 20 pounds; cellar wintering.	GEO. GRIMM.
Between 6 and 11 pounds. I winter in the cellar.	DR. A. B. MASON.
About 10 pounds for the cellar, and 14 for those wintered outdoors.	G. M. DOOLITTLE.

18 to 20 lbs. out of doors; cellar, 9 to 10 lbs. This is estimated. I can not give exact figures.

MRS. L. HARRISON.
I judge from 12 to 14 pounds. I have never weighed. This is for cellar, and about two months outdoors.
P. H. ELWOOD.

From October 1st to April 10th, not more than 7 pounds in cellar; about twice that amount outdoors, packed or in chaff hives.
A. J. COOK.

Outdoor wintering. I think I will put it at 12 pounds, with the remark that it would take a good deal more pains in weighing, etc., that I have given to the matter, to give the figures very much scientific value.
E. E. HASTY.

For cellar, perhaps 20 lbs. The only actual figures I have are of four colonies, weighed October 21, 1881, and April 17, 1882; the losses in weight being respectively 13¼, 19¾, 21½, and 25½, or an average of 20 lbs. This, of course, included dead bees as well as stores.
C. C. MILLER.

In this State (Louisiana) we have to give the average from November to March. It takes fully 25 pounds to bring a colony to the 15th of March. The consumption doesn't seem to be much until about February 1; but after that it is very rapid, which is no doubt due to the rapid breeding.

P. L. VIALON.

I can not say exactly; but I should judge about 20 pounds. Of course, much of this was used outside of wintering proper. I wintered in chaff hives, out of doors.

O. O. POPPLETON.

I can not give you an average of the stores consumed from Oct. 31 to May 1. It requires about twice the honey to carry bees through from Oct. 31 to April 1 outdoors that it would in the cellar. During the months of April they will be outdoors in either case, usually. I think perhaps the average is 10 pounds indoors and 20 outdoors, between October 31 and April 1.

JAMES HEDDON.

There, friends, I am very glad this question has come up in the shape it has, that you may see how much we differ, or, I am tempted to say, how loose some of us are in our estimates. H. R. Boardman says from 20 to 25 pounds, and he is one of the best bee-men there are in the lot. I wish he had told us whether he just guessed at it or whether he had been in the habit of weighing. Dadant & Son are worse yet—30 pounds to the cellar, and 40 outdoors. With that great big Quinby frame of theirs, there must be such rousing colonies that it takes double, or even more, than some of the rest of us report. Now, in contrast with the above, Dr. Mason says from 6 to 11 pounds. Doctor, stand up and tell us what you mean by such a statement as that. You remind us of the man who brought home two stoves. When his wife asked what he meant, he said the agent warranted that kind of a stove to save half of the fuel; therefore with commendable good sense and forethought he bought two stoves, that he might be enabled to save the whole of it. If you can winter good colonies of bees on from 6 to 11 pounds of stores, we had better ship our bees to you, and get you to winter them for us; that is, where it takes from 30 to 40 pounds. My experience would agree pretty nearly with Doolittle's, only I should add, some rousing big colonies might need 20 pounds, and I do not know but we have had a very few in our experience that used up 25 pounds; and I also want to add, they used it profitably, for the 25 pounds of stores enabled them to send out tremendous swarms very early; or when we practiced extracting they gave enormous crops of honey, while moderate ones did nothing to speak of. Prof. Cook has also wintered bees on only 7 pounds of stores. Come to think of it, I have done even better than that. I have seen a weak colony consume only a very small amount of stores during winter; then when spring came, as they just managed to pull through, they got down to a mere handful, and did not consume any stores to speak of until honey commenced coming. Under the circumstances it cost little or nothing to winter them; but the profit during the summer from them was also little or nothing, for it took the whole season for them to build up in decent shape for winter. There, friends, you have my explanation of these reports, so widely different. Is it not a pretty good one? Another question arises—Which is the more profitable, colonies that require from 20 to 25 pounds to carry them through, or those that will get along on from 5 to 10 pounds?



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer, or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I, and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

HOW many of our young folks can draw pictures? Hold up your hands. Why, almost all of you can. But, how many can draw *real* nice ones? Let's see the hands again. Is that all? There are only just a few hands. Well, that will be enough. We want some of you who "know how" to draw, to illustrate your letters. If your papa has gotten up some new "fixin'" for the apiary that he thinks is real nice, suppose you make as good a picture as you can, and then describe it in your own words. If the tool or device shall be of value to bee-keepers at large, then we will engrave it; and how nice it will be to see your little letter with a picture beside it, that you made yourself! Remember, your drawing must represent something useful, if you expect to see it reproduced in these columns. During the last few days the juvenile letters have been coming in at a good rate, for which we extend our thanks. They are exceptionally good ones too. Some of them we give herewith; the rest will have to wait over till next time, for want of space.

BEES; FOOT-POWER BUZZ-SAWS.

Pa has bees, and I help take care of them. In the spring of 1887 we started in with 33, and increased to 48, eight of which we sold at \$6.00 each. Forty are now on their summer stands. We use the American hive, and like it the best. We use foundation for starters in the sections. We live by a big cranberry patch, and it is a good place for bees. We have a foot-power saw, so we can supply our customers as they come in.

CLAUD M. BURNETT, age 11.

New Vernon, Pa., Dec. 24, 1888.

UNCLE JOSEPH'S BEES.

My uncle has taken a good many pounds of honey. He winters his bees in chaff hives packed with autumn leaves, outdoors. I got a large story-book, and lots of candy and nuts, for Christmas. I have but one brother, named Bertie. He is 12 years old. I am 10. My aunt Mary does not like the bees, because they get in her hair and sting her, and they get after Uncle Joseph too. My grand-

father sits on the stoop and kills all that come near him. They all like honey, but I don't.

Cornwall-on-Hudson, N. Y. MABEL BRIGGS.

PAPA'S PACKING-BOX FOR WINTERING COLONIES.

My papa has nine colonies of bees. He packed them November 5th. He made a rough box of lumber, the front of which looked like this:

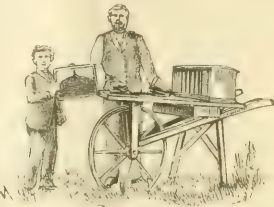
It was notched out at the lower board, opposite each colony, the full width of entrance of the Jones hive, which he uses. He puts a little board over the entrance so as to keep the packing from falling down so as not to interfere with the bees coming out. He weighed each hive, and put the weight on a little board inside on each colony. He says it is to know how much honey they eat during the winter. He put a super box on each, filled it full of chaff, and then he filled up the rest with sawdust.

Papa likes GLEANINGS very much. He may omit reading other things, but he never misses GLEANINGS. He lends it all around to every one, I think. I am just 11 years old, and this is my first attempt to write for the public to see. MINNIE COULTER.

Oil City, Ont., Dec. 24.

PAPA'S HIVE-CART, AND FOR WHAT IT IS USED.

My papa has a device for hiving swarms, and for other work about the apiary. It is shown in the photograph which I send you. You see that it is a table upon a wheel, with legs like a wheelbarrow. The wheel is large and strong. When he wishes to have a swarm of bees, or do any other work about the



A HIVE-CART.

apiary he puts his hive or other fixtures upon it, and wheels it wherever he wishes to work. There is a drawer beneath the table, where he keeps his necessary tools. In the photograph you can see a hive on the table. Papa has 200 colonies in that kind of hive. You can also see my father and my younger brother. I was at my uncle's helping him with his bees when the photograph, was taken.

JESSE A. ALDRICH, age 12.

Morristown, Minn., Dec. 6, 1888.

Your papa's hive-cart, we are sure, will work real nicely. The large wheel will cause the cart itself to run very smoothly. You know a large wheel will "walk" right over uneven places on the ground, just like a man, while a small wheel will go "bumpity-bump." But is not the platform of the cart pretty high up from the ground to be handy?

A COLONY WHICH HAS FOR 20 YEARS MADE ITS ABODE BETWEEN THE CLAPBOARDS AND PLASTERING OF A HOUSE.

I will tell you of a swarm of bees that went into a house near here 20 years ago, and is there still. It is a large farmhouse, old-fashioned. The posts, or studding, are 10 inches wide and 4 feet apart. The plastering and clapboards are 10 inches apart. There is a knot-hole on the south side of the house, as large as a silver dollar. Twenty years ago a strong swarm of bees came and took possession of

the space between the clapboards and plastering. They did not swarm for four years, and at the end of that time they cast a large swarm very early; and ever since then, every spring, they swarm from three to four times. In the summer they cover nearly 10 feet square, and in winter they huddle together opposite the parlor stove; and by striking on the wall they answer every time. This year they cast four swarms. The man lost all his bees every year but this one. Two years ago they saw honey dripping out of the lower row of clapboards, and fixed a trough and caught over 100 lbs. It was so hot it broke loose, the man says. Father has offered to take them out for him, but he says he would not disturb them for any thing, as he has prospered in the last 20 years.

FRANK W. REED, age 8.

Milford, Wis., Dec. 10, 1888.

Why, friend Frank, you have told us a very interesting fact indeed. Usually such large swarms in a dwelling will not swarm—at least, not very often. Ten feet square and ten inches thick is a large colony indeed. No wonder they would respond in winter, even though they were less than half this size.

A PIG STORY, AND A GOOD ONE TOO.

Mr. Root:—I saw your notice in GLEANINGS, Dec. 15, and thought, as there was little or nothing to be said about bees, as they are all in the cellar, I would write a letter about something else. Last July, father and Edgar, my big brother, gave us a little pig to raise. He was the runt (you know there is always a runt), and he could not get enough to eat with the others. We started to feed him milk with a spoon, five times a day. He soon learned to come when we went to the barnyard and called, "Come, Johnny, Johnny." We weighed him every week for a while on the honey-scales, afterward whenever we had time. He learned to drink without the spoon in a few weeks, and then we began to give him ground rye, wet with warm milk; and as he grew bigger, we wet it with water. After a while he was able to fight his way among the rest, without any help, and get his share. Then when the rest got big enough to eat from the trough he could not reach, so we had him stand on a stool and then eat. He is now able to eat with the others, and can reach into the trough as well as the next one. When we first took him to raise he weighed 4 pounds. Now he weighs over 80.

We have a thoroughbred Durham calf, about two or three weeks old, and father agreed to give us that for the pig. Father is to have the calves and butter and milk, if our calf lives to be a cow. He is not one of those men who would claim the money after the calf is sold. It is our calf, and will be our cow.

ALBERT HALLETT.

Galena, Ill., Dec. 28, 1888.

Yes, Albert, we are glad you told us about the pig. Perhaps it will induce other papas to give their children something which is *all their own*. It is worth something to a boy to learn to take care of property; not only to take care of it, but to increase its value. The early habits thus acquired will be worth something. But it is cruel, after the boy has worked hard, for the father to sell his pig, calf, or whatever it be, and then pocket the proceeds. There are a few papas who do this, but your father evidently is not one.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

MILD WEATHER, AND BROOD-REARING.

OWING to the very mild weather for the past four weeks, queens have begun laying. The mild weather has caused a hundred per cent more stores to be consumed the past month than usual, and I therefore predict loss of bees from starvation this winter to be far in excess of the average.

S. W. MORRISON, M. D.

Oxford, Pa., Jan. 8, 1889.

40 QUARTS OF JAPANESE BUCKWHEAT, FROM 10 OUNCES.

On the 21st day of July I sowed 10 oz. of Japanese buckwheat on a piece of ground one rod wide and six rods long. I harvested forty quarts of fine well-filled wheat. How is that for a yield?

LaGrange, O., Dec. 27, 1888. V. E. FREEMAN.

25 BUSHEL OF JAPANESE BUCKWHEAT FROM 22 POUNDS.

The 22 pounds of Japanese buckwheat I bought of you last spring, yielded me 25 bushels of nice clean wheat, after losing some on the ground. Bees did well on it. They are now in good condition for winter.

G. A. WILLIS.

Enfield, Ill., Dec. 23, 1888.

500 COLONIES IN WINTER.

I only wish you could have been at Syracuse at the convention, or that I could have been in California with you. I go into winter with over 500 colonies. We are having a severe winter.

W. L. COGGSHALL.

West Groton, N. Y., Dec. 24, 1888.

[Friend C., I should have been glad to be with you; but I should have been still gladder to have you and all the other friends of the East with me during my visit in California. As the latter could not be, I am doing the best I can to tell you what I saw there.]

COMBS OF POLLEN; ARE THEY GOOD FOR ANY THING?

My neighbor's bees robbed one of my hives; and when I found it out, the honey was all gone, and the bees also. The frames seem to be nearly full of the pollen. Are they good for anything to use next season, or had I better melt them up?

Westboro, Mass., Dec. 20, 1888. FRANK SIBLEY.

[They will be good to give to another colony in the spring during brood-rearing.]

THE WOOD AND ZINC COMBINED QUEEN-EXCLUDING HONEY-BOARDS.

1. In using the above, is it necessary that the wood strip be just over the top-bar of the brood-frames?

2. Should there be a bee-space between the top-bars and the queen-excluding honey-board?

3. Should there be a bee-space between the queen-excluder and the super, or should the super sit right on the excluder, without any bee-space?

TO MAKE DUMMIES.

Will it do to make a frame, wide enough to fill the space of two brood-frames, out of some light timber, and fill the inside of the dummy or frame with fine chaff, or would thinner ones be better?

Muncie, Ind.

ELIAS W. HITCHINS.

[1. The slats should cover the spaces *between* the frames. 2. There should be a bee-space between the frames and honey-board, and there should also be a bee-space between the super and the honey-board. You can make a dummy in the manner you describe. A less thickness will not be desirable.]

REPORTS ENCOURAGING.

STARTING IN BEE CULTURE.

ABOUT one year ago I accidentally got one of your journals, and became somewhat interested. I bought a colony in March, in the American hive. This cast two strong swarms, both of which I still have, though the first swarm absconded after I had it nicely in the hive for three hours. I followed the vagrant for a fourth of a mile, when it again clustered in the very top of a huge white-oak tree, 100 feet from the ground. After several hours of perilous work I again hived it. This was my "first born," and almost "damped" my ardor in bee culture. Later on, however, I purchased one of your A B C books and a smoker, through Mr. P. C. Clinger of this place; and in my own estimation I am improving.

Milton, Pa., Dec. 24.

P. F. RANGLER.

700 LBS. FROM 11 SWARMS.

My bees did very well this year. I took 700 lbs., comb, from 11 swarms, spring count, and increased to 18 swarms.

WM. C. HERR.

Pike's Peak, Mich., Dec. 27, 1888.

A RUNAWAY SWARM, AND 80 LBS. OF HONEY.

I had a swarm of bees come to me on the 10th day of September. I hived them on foundation, and they made 80 pounds of honey. They told me they would do no good.

A. McDOWELL.

Gaynor City, Mo.

FROM 6 TO 22, AND 325 LBS. OF HONEY.

From 6 stands of bees, spring count, we increased to 22 and obtained about 325 pounds of honey in 1-lb. sections, worth 13 cts. per pound.

Enfield, Ill., Dec. 23, 1888.

G. A. WILLIS.

300 LBS. OF HONEY FROM 5 COLONIES.

I had six colonies but no swarms, and secured about 300 lbs. of honey from five colonies, the sixth making no surplus. All are in good condition for winter.

E. F. BAKER.

Swanton, Neb.

PROSPECTS GOOD.

Spring count was 20 stands, all in good trim except 4. Pounds of extracted honey, 150; sold at 12½ cts. Pounds of comb honey, 450; sold at 20 cts. Total 600 lbs. I had no increase, and united to 18 in the fall, all in good condition for winter, on summer stands. We had a very poor season, as the white clover secreted no honey. Prospects are good for another year.

WM. O. HEIVLY.

Raymore, Mo., Dec. 31, 1888.

FROM 3 TO 20, AND 50 LBS. OF HONEY.

I commenced the season with 3 strong swarms, 2 of which were Italians, and the rest hybrids. I had 13 natural swarms, and took up 4 swarms from the woods, and transferred them to hives, with good success. I now have 20 swarms in prime condition. I did not expect to get much honey, for I worked for increase; however, I got about 50 lbs., and am satisfied with results thus far.

Brimfield, Mass., Dec. 25, 1888.

F. E. BROWN.

MYSELF AND MY NEIGHBORS.

NOTES OF TRAVEL.

He becometh poor that dealeth with a slack hand; but the hand of the diligent maketh rich.—PR. 10: 4.

BEFORE going further I want to digress a little to tell you a short story. Twenty-five or thirty years ago a young man started in Chicago, selling illustrated cards with texts, and, if I am correctly informed, a few other notions and novelties. I am told that he first started out with a half-bushel market-basket. The basket was his own property, and paid for; but the things it contained were mostly sold on commission. This boy was David C. Cook. Printed matter for Sunday-school work seems to have been his hobby. I believe he was also quite an enthusiastic worker in the Sunday-schools. In a little time he had amassed capital enough not only to buy his stock outright, but he got a little printing press, which he used in a room of his own. Before anybody knew it, almost, he was printing his own cards, and some little Sunday-school papers besides. If any of our readers can furnish me a copy of some of those earlier publications, I should consider it a favor. By and by he began to furnish lesson-helps for the Sunday-schools all over the land; and then came out the five-cent edition of books that had previously been sold for \$1.25 or more. GLEANINGS has always been instrumental in pushing the sale of these books. Many thousands of T. S. Arthur's Ten Nights in a Bar-room have been sold at only *three cents* each. David C. Cook published them so we bought them for about 2½ cents each. When his business became so large that he employed half a dozen great printing-presses, the whole business world began to pick and find fault with his cheap editions. Stories were started that he was financially embarrassed, and that he was about to make a failure. The first I knew of it was in seeing friend Cook's vigorous clips at his persecutors, through the Sunday-school helps. It seemed as though he had forgotten the little text that had appeared so prominently on the Sunday-school cards he used to peddle—"Blessed are ye when men shall persecute you and revile you for my sake." I wrote him a kindly letter in regard to the matter, and remonstrated against placing before the children of our Sunday-schools the statement of how he had been wronged. He wrote me a very kind letter by way of reply, thanking me, and he gave me his promise that nothing of the kind should again get into his publications. I had forgotten all about the matter until the day I was riding with my friend "Tommy Irondale" up the Piru Valley, on the way to friend Reasoner's. My companion, however, had so much to say in regard to a certain Mr. Cook, who owned the valley for ten miles or more, that I asked him what Cook he meant.

"Why, Mr. Root, you have certainly heard of David C. Cook, who published the Sunday-school literature?"

"Why, to be sure I know David C. Cook, the Sunday-school man. But he lives in

Chicago, and has a tremendous big business. Is this Cook any relation of his?"

"Why, bless your heart, this is David C. Cook himself, who owns this ranch. He paid \$60,000 for 12,000 acres of land, and this is his town and store and meeting-house, and there is where he lives. He has been here all summer. If you would like to see him, we will stop long enough to have a little chat with him, if he is not too busy."

We found on inquiry that Mr. Cook had gone back to Chicago to see to business, but that he was expected on the evening train. But the foreman at the office kindly gave us all the information he could. Forty-three teams were plowing, harrowing, and cultivating, the day we were there, in his different fruit-orchards. Four hundred acres were being planted to oranges; six hundred more to figs, olives, raisin-grapes, guavas, lemons, peaches, pears, apples, etc. Roads were being made, flumes and aqueducts and irrigating canals were being constructed along the mountain-sides and through the valleys, and a great enterprise was under way. Mrs. Reasoner, where we stopped for dinner, informed us that Mr. Cook himself personally superintended their Sunday-school every Sabbath, at the pretty little church, when he was on the ranch. She said she had been told he now pays taxes on *six millions of dollars*. When I suggested that the Piru ranch would be entirely temperance, the foreman smiled as he told me that no inducement could persuade Mr. Cook to even *plant* such grapes as are used for making wine. When he sells lots to his people, as of course he intended to do, a deed is made out like the following, which was, in fact, taken from a blank deed furnished me by the foreman:

It is provided and covenanted, as a covenant running with the land, that if at any time said second party, his heirs, assigns, or successor in interest, shall, with the knowledge and consent of the owner of said premises, use, or cause to be used, or shall allow or authorize in any manner, directly or indirectly, said premises, or any part thereof, to be used for the purpose of vending intoxicating liquors for drinking purposes, whether said vending shall be directly or under some evasive guise, thereupon the title hereby granted shall revert to and be vested in

The best legal talent has decided that the provision in the deed is valid; and that, upon its violation, the land reverts to the original owner.

I picked up one of his letter-heads from the desk. On it was a map of the ranch, and the following:

THE PIRU RANCHO.—The "Piru" Rancho, or Rancho "Temescal," with adjacent purchases, embraces 13,743 acres of land in a body, situated partly in Ventura and partly in Los Angeles counties, California. The lower end of the ranch is crossed by the Southern Pacific R. R. being two and one-half miles from Camulos station and postoffice, and midway between Los Angeles and Santa Barbara. It is a mountain-valley ranch, containing about 1800 acres of valley land, the rest plowable hill land, with a rich soil one hundred to one thousand feet deep, and steep grazing mountain land. The Piru River runs through four and one-half miles of the ranch, furnishing ample water for irrigating valley lands. It was formerly a part of the "Camulos Mission" Rancho, the home of "Ramona," celebrated for its fine olives and oranges, and has, owing to location, a climate suited to the most delicate trees and plants, making it especially adapted for fine fruit-growing, to which the present owner in-

tends to devote it. The air is extremely dry, clear, and free from fog, frosts, or extremes of heat and cold. Its medicinal springs, similar to those of Newgate, England, are already attracting some attention. The ranch is situated in the oil-belt, seven miles from the largest oil-well in the State, and one-half mile from where wells are now being sunk, and has oil and "brear" on the surface in various places. Owing to mountain ranges, all travel from the north for a large section passes through the ranch, and the town site of Piru City is located on a pretty piece of ground at the railroad crossing.

I inquired of Mrs. Reasoner about his looks and actions. She says he is never happy unless he is directing some new enterprise; that it seems impossible for him to sit still a minute. In the Sunday-school he is a most vehement and energetic worker, although she said that some Sundays he looked as if he were ready to drop, evidently from overwork. If these words should ever meet the eye of friend Cook I would remind him that even the most enduring frame may be taxed beyond its limit. While he may thank God for the wonderful endurance and business energy and capacity with which he has been endowed, he should remember, "What shall it profit a man if he shall gain the whole world and lose his own soul?" It rejoiced my heart to see how the promise has been verified in his case:

Godliness is profitable for all things; having the promise of the life that now is, and of that which is to come.—I. TIM. 4:8.

SKUNKS AND BEES.

There is quite a little difficulty here from these pests. At Mr. Marple's apiary we happened to pass a hive where the bees came out so furiously it attracted attention, when Mr. Reasoner examined the entrance, and at once declared skunks had been troubling them. The ground was dug up around the entrance, and marks of their claws were plainly visible. Friend R. directed the owner to put some strychnine in some comb honey and place it at night near the entrance, to be removed next morning if not taken. He said he had in this way killed more than a dozen. Friend J. J. Cole, at Tropico, where I am at present, says he has been also annoyed, and he poisons them in much the same way. At friend Marple's apiary we found perhaps a dozen hives where skunks had dug around the entrance. Friend Cole thinks they scratch the hive so as to cause the bees to come out, and then kill them by mashing them in the dirt before they eat them.

On account of the late poor seasons, bees are offered at comparatively low prices. An apiary near San Diego was offered us at \$1.25 per colony. There were something over 100 colonies, but they were in a poor sort of hive. Here at Tropico over 100 colonies, in very good two-story hives, are offered at \$2.00 per colony. In both cases the owner wanted to give up the business.

Dec. 6.—The sun rises upon me this morning at the home of W. W. Bliss, Duarte. Friend Bliss is not at home, but I found that his mother knows me well through GLEANINGS; and as she is deeply interested in poultry, incubators, etc., we passed a very agreeable evening. I am glad I love all rural industries and interests that take the

attention of the inmates of Our Homes, and Our Neighbors. All about me here are extensive orange-groves. Right near where I sit writing is a great wagon full of crocheted poles, long and short, to prop the limbs of the orange-trees, to keep them from breaking off. The soil here is almost clear pulverized granite, washed down from the mountains. It is so soft, even before plowing, that the foot sinks into it when you walk. It cultivates most beautifully, and, when worked and watered several years, it seems like soft sand. Every thing grows in it most wonderfully. Corn that has been dropped grows right up, even in December; but I am told the nights are too cold for corn to do *well* now; but many plant it for fodder, even in winter. Squashes, or California pumpkins, grow all over the country, in the greatest abundance, without any irrigation at all, and often without any cultivation. Day before yesterday I saw, on a protected southern slope, great strong plants just out of the ground. They are always seen in waste places the year round, for the very best place to keep them is right where they grow, so that the new crop and those a year old are often found in the same field. I am now right in the narrow fruit-belt I have before spoken of, that runs along at the foot of the mountain. An orange-orchard, with the trees loaded so the limbs are touching the ground, is one of the most beautiful sights, and right here there are miles of such. An irrigating stream, with its pure clear mountain water, running over a bed of gravel, composed of fragments of gray granite, is also to me a most exhilarating sight. The roads here at Duarte are broad, well traveled, and made beautifully smooth with these same granite pebbles.

2 o'clock.—To Huber.—Papa has just visited what is called in California a "chicken ranch." Two young men have got some land and put up little coops, or chicken-houses, all over it. They have three incubators, or machines to hatch chickens, at work; and day before yesterday one of the machines hatched out 200. When the sun goes behind a cloud they just peep, peep, peep, for they haven't any mamma to keep them warm; but when it comes out again, and shines through the little windows, then the chickens all crowd into the sunshine, and are just as happy as can be. At night they all go into a brooder that is warmed by a big lamp. Just beyond these very small ones are some chicks two weeks old; and further on some older still, and so on. The largest ones, that have got their tails grown out, run out in the field where they please. Then they have ducks and turkeys too, and the ducks have nice clear ponds to swim in; and a lot of pretty springs in the hillside furnish clear water for the ducks, turkeys, and chickens. The real little ones are fed about every hour on bread and milk. At noon the boys had prepared a very nice dinner for us; and just before we sat down to dinner, one of the boys bowed his head and asked a blessing. I tell you, papa felt real glad to see them do that, for he knew then they were Christian boys who loved God and were trying hard to do right. Their

flock of grown-up Pekin ducks, with their yellow bills and snow-white feathers, are, as they swim about in their beautiful pond, about the prettiest I ever saw in my life.

Dec. 7.—Once more I am seated out in the morning sun, writing. I am on the edge of a granite rock, almost on the summit of a great mountain. After I got off the train over a week ago, where the lady asked me if I had visited Riverside, the following letter was handed me:

Mr. Root:—If you can make it convenient to visit Riverside (and you will miss a great deal if you don't—of course you *must* see Riverside), if you will drop me a line I will meet you with a team and show you around. I am not proud of my apiary, but I can show you some things that you will be pleased to see. I can take you up on one of those "real live mountains." As I live nearly on the top of one, you can have a chance to climb to your heart's content, or you can go horseback after we get as far as we can go by wagon. I will esteem it a special favor to have you call upon me, and I think we should both be benefited. I can show you the home of the orange, etc. I can show you bees in hives, in houses, in barns, and in the rocks, where you can go and get out honey, and bees without let or hindrance, and I will go and help you. I can show you orange-orchards that net the owners one thousand dollars a year profit, per acre. I have some land that brought me in at the rate of *ten thousand dollars* a year per acre. It was in orange-plants. Come and see me. J. W. KEENEY.

Riverside, Cal., Nov. 26, 1888.

Well, here I am. Right in plain sight in the valley below are seven different towns, or villages: Riverside, East Riverside, Colton, San Bernardino, Ontario, South Riverside, and Pomona. We have been out having a ramble over the mountains. Friend Keeney's hobby is finding springs of water among the mountains. He always thanks God for *whatever* he finds, and of course he finds a *great many* of "God's gifts." He has found nearly a dozen different springs already, and therefore pure spring water flows in pipes almost all over the 160 acres of mountain-top he has taken up. It is up in the mountain-top where nobody else would go, that he made \$1000 raising orange-trees on one-tenth of an acre. His six-year-old prattler, Vernon, when asked if he liked to live up on the mountain, replied, "Yes, I like to live *anywhere*." Dear friend, can you say as much as this little child of the mountains? The other little prattler, that is watching me while I write, is named Mignon, and she is only four years old, and these two have a little nursery of orange-trees, *all their own*, to water and care for.

I not only climbed the mountain, but I sat on the peak, even though said peak was granite, and so sharp I feared it would punch a hole in my trousers. If it did, I proposed to present the rent to my wife as a souvenir of the occasion. Two things contributed to make my seat comfortable in spite of its angular point. First, I was very tired, and panting for breath; second, the view was wonderful. Friend Keeney's house, where I am now writing, seemed but very little higher than the valley; but as I now turn and look back at the peak where I

sat, it seems only a very little higher, as the height of mountains is so deceptive to the eye. The buggy is now waiting for me, and we must go. By the way, perhaps you think it funny the good people out here have nothing to do but to hitch up and drive *me* around, and wait on me. Well, I have thought so too, a great many times, and I am going to try to pay them back if I can.

A CALIFORNIA BEE-CAVE.

Half way down the mountain, friend K. handed the lines to his wife, hopped out of the buggy, told me to come on, and, oh my! didn't he dodge about among the rocks and bushes, along the mountain-side? If some old bear should take a notion to catch *him*, he would roll over *sure*, for that is what I almost did, several times. Pretty soon he came to a bee-cave in the rocks, and showed me where they had been getting pieces of honey out as they wanted it, for years. Yes, and the neighbors did the same; but the bees always fixed it up very patiently, and put in more. Well, he smoked them a little, and we too took out a great slice to eat with our lunch when dinner time came. A week ago he took 80 lbs. of honey from one of these clefts in the rocks, and he is going to save the bees besides. There are great quantities of bees and honey in the rocks, much of it inaccessible without expensive blasting. One man, near Los Angeles, lost his life by falling while trying to get the honey from a bee-cave. It was in a bad place to get at, and the bees stung him so badly that he lost his footing.

C. O. PERRINE.

Dec. 7, evening.—Friend Keeney was right about Riverside, and I am very glad he invited me here. It is a town of about 5000 inhabitants, three weekly papers, two dailies, and no saloons. They first raised the tax to \$500 for *three months*, and for a while no saloon-keeper dared undertake it with such odds against him. Finally one opened, and charged 15 cts. a drink. At the end of the quarter he announced his determination of trying it another three months. At this crisis the Riverside people arose in their might and decided no saloon should ever more disgrace their beautiful corporation limits at *any price*; and to show that they were in earnest they enlarged their limits, in one direction at least, as far as *ten miles*. We drove out this ten miles on what is called Magnolia Avenue. There are miles and miles of beautifully laden orange-trees, with the limbs propped to keep them from breaking; along the roadsides are the most beautiful palm-trees, and almost every other kind of ornamental shade-tree that this world produces. I doubt if there are on the whole face of the earth any more beautiful residences than these. We drove into one of the prettiest orange-groves to eat our lunch; and when friend Keeney introduced the proprietor, he too "knew A. I. Root." Dear reader, who do you suppose it was? Why, Mr. C. O. Perrine, the man who wasted his money on the steamboat apiary, as mentioned in the A B C book. Friend P. bought land here about six years ago, and has, as he says, taken advantage of the boom, and got back the money that went

away when that steamboat proved a failure. As we returned we passed the oldest orange-orchard in Riverside. The owners hauled water in barrels from the river to irrigate them, before the canals were constructed. Some of the trees have borne 20 boxes of oranges in one season; and at \$2.00 per box it is not strange that, with 75 trees to the acre, he should make them average \$1000. Now, dear reader, don't get excited. Riverside is perhaps the best orange district in the world, and this man is an expert. I have passed thousands of acres of oranges that are not paying the interest on the money, and many are abandoned in disgust by their discouraged owners. One of the most beautiful features of Riverside is the bright sparkling water, as it hurries over its gravely bed through the immense irrigating ditches that traverse the land. Some of them are big enough to take quite a pleasure-boat. At one point, where there is a fall of about 30 feet, they are talking of a water-motor to run an electric motor, to carry a train of motor cars through their beautiful valley. What do you think of such an industry as that, ye scientific mechanical geniuses who read GLEANINGS? I tell you, friends, no one knows what a people may do who can say to the saloon-keepers, "Get thee behind me, Satan." "No good thing will he withhold from them who walk uprightly."

Mrs. Keeney informs me that the temperature is about 10 degrees cooler in summer on their mountain, and nearly 10 degrees warmer in winter. This specially fits it for friend K.'s business of raising orange-trees. He uses cheap cotton cloth to protect them from the sun or from the frost, as the case may be. Frames made of lath are also used, and these answer perhaps better than the cloth, for they give the plants sun half the time. In California, all the greenhouses are made with spaced lath instead of glass. Our friend C. O. Perrine made the only greenhouse, covered with glass, I have seen; and he says it was money thrown away, for they make no use of it.

Now a word about being out of work. My two friends Keeney and Woodberry are both carpenters, and both get \$3.50 per day, and I believe both now have more work than they can do; but when they were out of work they were never idle. Each one looked sharp for the chances. One took hold of strawberries and the other seedling oranges. Before leaving Riverside I went into the fruit-packing establishment. After the raisins are dried in the sun, as I have explained, on wooden trays, they are sorted, and the poor ones are put through a machine that breaks them from the stems. Then an ordinary fanning-mill is used to clean the fruit from the stems, when it is ready to be pressed into boxes. Before putting on the cover, however, a lot of the very largest are used to cover the top. I didn't like this; but when I saw every one of the thousands of boxes marked, in large plain letters, "London," I felt like saying, "O Riverside, Riverside! ye who have banished the saloons, have you yet to learn that truth is always better than untruth?"

Friend Keeney has invented, and got into practical use, a machine that sorts the oranges into 8 different sizes, putting each size into a box by itself. I saw the machine at work, and it does it rapidly and surely. A stencil on the outside of the box then tells how many and what size each box contains.

I can not drop Riverside without a word more in regard to her wonderful irrigating canals. One of them is right beside the railroad track, just in front of the depot. The water moves so fast one can hardly run as fast as the bubbles on the surface. One evening I walked out to find the rooms of the Y. M. C. A. Along every street, even in the darkness, I heard the ripples of the happy brooks as they hustled by on their happy errand.

Continued Jan. 15.

JAPANESE BUCKWHEAT.

THE PROFIT MADE IN RAISING IT, ON PAPER.

I BOUGHT one bushel of Japanese buckwheat of you last spring, and I was in hopes of sending a good report; but the frost came too soon. I sold half a bushel to my neighbor, who sowed it about the first of July. The frost came and killed it before one-fourth of it (so my neighbor thought) was ripe; but he secured 25 bushels. My own was sown about one week later, and the frost spoiled it. The bees worked on the Japanese about the same as on the common that was planted beside it, so far as I could ascertain. My neighbor had both kinds in one field, and the common was not worth harvesting, while the yield of the Japanese would have been, but for the frost, 40 bushels at least. I have been thinking of renting land within a mile or two of my place, and sowing it with buckwheat, for the profit I should derive out of it from the grain alone; then the honey I would get from it would be clear gain. I could get the land to plant on shares, or hire it cheap (waste land for \$2.00 per acre). I would figure it in some such way as this:

	Dr.
10 acres of land at \$2.00 per acre.....	\$20
For plowing, at \$1.50 per acre.....	15
Getting in the seed, at \$1.00 per acre.....	10
Seed (I think I can get Japanese seed at \$1.50 or \$1.60, with freight) 7½ bushels.....	12
Cutting grain and setting up, at \$1.00 per acre	10
Thrashing, 4 cts. per bushel, 25 bushels at \$1.00.....	10
	\$77
	Cr.
250 bushels of buckwheat at 60.....	\$150
	77
	\$73

That makes 73 dollars out of the operation. I figured buckwheat at 60 cts. per bushel. It sells here at the mill in Danielsonville, 5 miles from my place, at 65 cts., but it would cost about 5 cts. to market it. I think I could raise 25 bushels per acre without any fertilizer; but if I should put \$50.00 worth of fertilizers on the 10 acres, I should get enough extra buckwheat to more than get my money back; but even if I get but 25 bushels per acre, then it would more than pay me. I know I might fail, and not get one-half the above amount, or perhaps not even 5 bushels; but there is risk in all business.

J. L. HYDE.

Pomfret Landing, Conn., Dec. 13, 1888.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JAN. 15, 1889.

And he healed many that were sick of divers diseases, and cast out many devils, and suffered not the devils to speak, because they knew him. — MARK 1:34

EARLY QUEENS FROM THE SOUTH.

ALREADY inquiries are coming in. "To whom can I send and get a queen now?" Our friend Nellie Adams, of Florida, comes forward with an advertisement in this issue, but I believe she is the only one. I talked with the folks about it in California, but they are all too well off, or too lazy, or too busy with something else. Now, if there is anybody else in Florida or Texas or California who has young queens on hand ready to mail right off now, let us know, and we will give you an advertisement free of charge.

PRICE LISTS AND CIRCULARS OF APIARIAN SUPPLIES AND PRODUCTS FOR 1889.

We are now ready to make mention of all such circulars and price lists, but we must insist that they have a printed date on them. How else are we to tell whether it is something we noticed last year, or a brand-new one? Sometimes, perhaps, the date is left off by omission; but please remember that nowadays every thing that gives prices or information of any kind in regard to merchandise gives a date. We do not want to waste our time in reading over something that is old and out of date.

THE "WHITE PLUME" LETTUCE.

THE most promising head—the head I wrote about Nov. 15th, died on our hands after it had partially sent up a seed-stalk, so we have got to go back to first principles and start a lot more plants with the seed we raised last summer. The plants are up in the greenhouse, and we can, without question, succeed in getting as nice a head as the one we lost. I presume that none of the friends who received seed from us have done more than to get some nice white heads, without securing seed, unless some friend far enough south secured the seed in the winter. If any such there be, we shall be glad to hear from them.

"GROWING JAPANESE BUCKWHEAT, ON PAPER."

I OMITTED to make any comment or reply to the article on page 67, under the above heading, for the simple reason that I do not know how anybody can advise or suggest in such matters. Many people in many localities would do all and perhaps more than is there figured out; but there are others who would make a failure of the crop, even in the best locality. Then, again, there are experts in farming who would make as good a crop as our friend has figured, on almost any soil, and during almost any season, no matter how unfavorable. The most we can do is to print reports of what others have done;

but it should be borne in mind, when reading these reports, that those who report at all are, for the most part, the ones who have achieved at least a moderate success.

A HINT IN FAVOR OF HOUSE-APIARIES.

ON page 62 Frank W. Reed tells us of a colony of bees under the clapboards of a house, that had wintered safely for twenty years; and the record shows a better condition than we usually get where hives have good care. This colony has had no care whatever, for the very good reason that it was impossible to give them any. Now, why can't our friend, or anybody else, in fact, locate bees under the siding, all over the house? The swarms that come out every year will be so much clear gain, even if you sold them for a dollar apiece to whoever would take them; and it certainly would not be a very difficult matter to give each colony a crate of sections. Does some one urge that the bees would annoy the inmates? Well, then, let some stubborn brother, who loves bees and never expects to get married, conduct the enterprise.

D. A. JONES'S PRACTICAL BEE-KEEPING—A CORRECTION.

OUR friend D. A. Jones is now writing a series of papers on "Practical Bee-keeping," in the *Canadian Bee Journal*. The author is full of bee-lore, and that of a practical kind. These papers will be read with interest, because the matter bespeaks experience. But somehow or another, in speaking of the Parker machines he has got us quoted wrong. He says, "Ernest Root tells of a girl in their employ who can average 3000 (putting in foundation sections) a day with the Parker, and on occasion can put foundation in 1200 sections in an hour." We have not used the Parker machine in our establishment for several years—at least not to any great extent—our girls preferring the foot-power instead. Besides, if we could on occasion put foundation in 1200 sections in an hour, we ought certainly to average more than 3000 per day. The average would be nearer 10,000, would it not? Aren't you thinking of what he said on page 795, of the Oct. 15th issue, friend Jones? We there said that our girls could *fold* (not put foundation in) sections at the rate of 1000 per hour, and could, on occasions, *fold* at the rate of 1200 per hour. With regard to the relative merit of the Parker and the foot-power machines, our experience says that the latter work more rapidly and easily, but the Parker does rather *better* work; that is, the foundation is made to hang straighter after it leaves the machine.

NEST-EGGS FOR COLD WEATHER.

I NOTICE that one of the poultry-journals makes objections to glass and porcelain, that they are too cold for winter use. They give the poor biddies the toothache, probably, when they are obliged to sit on them at a zero temperature. They also object to the heavy porcelain, or china eggs, that, because of their weight, they knock against the good eggs and break them. Both objections, however, I think will not hold good to the eggs we have been selling, made of white glass. These are no heavier than ordinary eggs—perhaps not so heavy; and the material of which they are made is so thin they would not be likely to chill the poor biddy. The basswood nest-eggs are free from both the above objections—they can not be broken, and are less expensive. Ernest says, however, their extreme lightness

causes them to be pushed out of the nest; and my objection to them is, that when they get soiled you can not wash them up as you can the glass ones.

BAROMETERS, AND WHAT THEY ARE GOOD FOR.

WHEN I first got up, on the morning of January 9th, I happened to pass the aneroid barometer hanging in the greenhouse. As the indicator was clear down below the markings of the scale, I concluded the machine had broken; but to be sure, I ran at once over to the house, where hangs a mercurial barometer, only to discover that the column of mercury was also clear below the marks on the scale, and below any thing that I had ever known in perhaps twenty years of observation. I at once announced to the family and neighbors that we were going to have a fearful flood, hurricane, cyclone, or something of the sort. As the morning was perfectly still and warm, nobody paid much attention to my warnings, unless it was Huber. He was greatly exercised for fear the house would sail off into the flood which papa was talking about; but when mamma informed him that brick houses never float away, he admitted the correctness of her reasoning, and put away his dismal forebodings. Toward noon, however, it began to rain, and by noon it rained in torrents. Pretty soon, with the rain came one of the most fearful winds ever witnessed in this locality. By night it was blowing so that people had difficulty in keeping on the sidewalks, and still the barometers stuck to their positions. The wind blew and shook the buildings all night; and in many places we read accounts of fearful losses of life as well as destruction of property. Now, I think it pays to have a barometer. At the noon service I cautioned the hands about leaving things about that would be blown down and destroyed by the wind. I told them to look well to the glass doors about the premises. At the close of my remarks I was informed that one glass door had been smashed already. Such a warning may easily save many times the cost of a barometer, to say nothing of loss of property and loss of life.

THE COMING BEE IN SIGHT.

I INCLOSE a note from the *Youth's Companion*, on the coming bee. H. P. LANGDON.
East Constable, N. Y., Jan. 8, 1889.

TRAVELING BEES.

The distances traversed by bees in pursuit of honey are surprising to a person unfamiliar with the habits of these busy workers.

A bee-keeper one morning dredged the backs of his bees with flour, as they were leaving the hives. He did this by a preconcerted arrangement with a friend who had a fine clover-field in bloom forty miles away.

The day following the experiment, he received a letter from this friend, stating, "There are plenty of your white-jacketed bees here in my clover." It was truly a wonderful instinct that sent the bees so far from home in quest of honey.

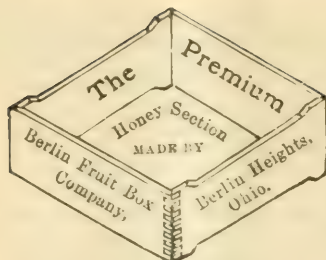
Well done, friend L. But is not the *Youth's Companion* getting out of its beat just a little? Their item would do nicely for a joke; but the trouble is, the general press will go to work and copy it, and spread it broadcast, taking it for fact. True, it is not so bad as the stories about artificial honey and artificial eggs; but still it should be corrected at once, and we hereby beg the publishers of the *Youth's Companion* to at once inform their readers that their statement is a blunder. It should have been four miles instead of forty. The extreme limit of reports like this—that is, tests made by sprinkling the bees with flour—has shown that they may fly in quest of stores as far as perhaps eight miles. In all of the reports that have come in, not one has ever gone beyond this; and the general testimony

seems to be to the effect that bees seldom go beyond two or three miles. When the Italians were first introduced in Medina County I took pains to go out with the horse and buggy in different directions, and at different seasons of the year, and it was only in extreme cases that I found them as much as three miles away from home. In view of the fearful blunders that journalists have been making in matters out of their beat, would it not be a wise precaution to submit questions pertaining to some particular branch or industry to experts or editors of journals pertaining to that particular industry? It is an easy matter to start a misleading statement; but it is a tremendous task to chase it out and head it off when it once gets into print.

DIMENSIONS OF FRAMES IN COMMON USE, ETC.

THE *Bee-Keeper's Guide* stirs things up lively in its issue for Jan. 1, on the matter of frames. A. I. Root and Prof. Cook are the parties who need correcting. For myself, I can only repeat that, when I commenced making Langstroth hives, I sent to father Langstroth and had him express to me a frame of exactly the dimensions he would have it. He sent me the frame, and I think I have it yet up in the attic. From this frame I took my figures, not noticing that it did not agree exactly with the dimensions given in his book. This frame, as I started it, is also exactly right for eight Simplicity sections, $4\frac{1}{4} \times 4\frac{1}{4}$. Now, if we go back to the old dimensions of the old frame, it will not hold eight sections; and, as a matter of course, we want the wide frames to have exactly the same dimensions as the brood-frames. In regard to the American frame and American hive, which was originated by H. A. King more than thirty years ago, I also got the dimensions of my American frame from friend King himself. This, however, was after he had decided to change the dimensions of his frame from what it had been originally. If I am correct, the first American hives made were changed so many times there was for a time no particular dimensions to either the frames or hives. Perhaps H. A. King or his brother can tell us something about the correct dimensions of the American frame. At the same time, I think we can show that there are more frames of both Langstroth and American, of the dimensions we give, than of all the rest in the world, by a very great odds. This being true, it would be folly to attempt, at this late date, to make any change. It now remains for Prof. Cook to stand up and tell us why he doesn't say whether the dimensions he gives in his Manual are inside or outside dimensions. Inasmuch as the outside dimensions must be exact, while the inside may be just as it happens (according to the thickness of the material), I do not see why anybody should ever think of taking dimensions of frames to refer to the inside. Permit us to thank friend Hill for his very kind mention of our latest edition of the A B C book. He says: "It is the largest and most extravagant publication of the kind, and one must see it to appreciate or comprehend its excellence. It is the accumulation of years." We don't exactly know what he means by the word "extravagant;" but from the general bearing of the notice we feel sure it can not mean any thing bad.

DADANT'S FOUNDATION FACTORY, WHOLE-SALE AND RETAIL. See advertisement in another column. 3btfd



The value of a one-piece section depends on its folding without breaking. Our process of manufacture secures that end. Our catalogue explains how it is done. Our No. 1 sections

are perfect in all respects, and No. 2 are not imperfect enough to impair their utility. We also make the nicest of **WOOD SEPARATORS**—keep **DADANT'S FOUNDATION**, and furnish three kinds of **BERRY PACKAGES**.

Address, as in cut, for catalogue and special prices. *Mention Gleanings.* 1-12db

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheap. We are offering our choicest white one-piece $4\frac{1}{4} \times 4\frac{1}{4}$ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting 3000 or more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS —OF— DADANT'S FOUNDATION SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for free samples, and price list of bee supplies. We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

CHAS. DADANT & SON,

3btfdb **Hamilton, Hancock Co., Illinois.**

In responding to this advertisement mention GLEANINGS.

1889. Italian Queens. 1889.

For \$1.00 From Jan. till June.
2-46d **N. ADAMS, Sorrento, Lake Co., Fla.**

Costs less than 2 cents per week.

THE CANADIAN BEE JOURNAL.

THE FIRST DOLLAR WEEKLY IN THE WORLD.

THE D. A. JONES CO., PUBLISHERS, BEETON, ONTARIO, CAN.

D. A. Jones is its editor, and this fact is a guarantee of its worth. It is thoroughly practical and contains weekly excellent articles from leading beekeepers in the United States and Canada. Fifty-two numbers make a volume of 1040 pages. American currency and stamps at par. Samples free.

WYANDOTTES.

I will sell choice pure-bred cockerels now at \$2.00 each. **W. K. LEWIS, Dry Ridge, Ky.** 24tfdb

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**

In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." *(Mention Gleanings.)* 1tfdb

ON 30 DAYS' TRIAL.



THIS NEW
ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail Circulars free. **EGGESTON TRUSS CO., Chicago, Ill.**

In responding to this advertisement mention GLEANINGS.

«New Orleans Apiary.»

Three hundred colonies of Italian and Carniolan Bees for sale at a low price, all in Langstroth hives. No rent to purchasers for the location, or will sell in small lots, to be shipped in the spring.

Address **J. W. WINDER,**
1-2d **New Orleans, La.**

BIG BUCKEYE FIELD CORN.

NEW TOMATOES

Our Illustrated Catalogue of Tested SEEDS, BULBS, TOOLS, &c., mailed free to all seed buyers. Two Colored Plates. It tells all about **SEEDS & Gardening**. The best Guide. Prices Low. Seeds Reliable. Used by Thousands of Farmers and Gardeners, and no complaints. Originators of Paragon, Acme, Perfection, Favorite, Beauty and other Tomatoes. **A. W. LIVINGSTON'S SONS,** P. O. Box 275, Columbus, O.

OUR HOBBY

GOLD COIN SWEET CORN.

In responding to this advertisement mention GLEANINGS.

B. J. MILLER & CO.,
NAPPANEE, - ELKHART CO., - IND.,
MANUFACTURERS OF

BEE-HIVES AND SUPPLIES.

Sections, T-tin cases, shipping-crates, metal corners, etc. Five per cent discount on supplies in Jan. and Feb. Price list free. Send for one. 1tfdb

In responding to this advertisement mention GLEANINGS.

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NUMBER TWO OF THE NEW

QUEEN - BREEDER'S JOURNAL JUST OUT,

CONTAINS matter of great importance to all bee-keepers. It is neat, witty, brief, and to the point. Articles from the best writers. Send for a free sample. 50 cts. per year. Address

3d E. L. PRATT, Marlboro, Mass.

BIG BUCKEYE FIELD CORN.

NEW TOMATOES

GOLD COIN SWEET CORN.

Our Illustrated Annual of Tested SEEDS, BULBS, TOOLS, &c., mailed free to all seed buyers. Two Colored Plates. It tells all about SEEDS & Gardening. The best Guide. Prices Low. Seeds Reliable. Used by Thousands of Farmers and Gardeners and no complaints. Originators of Paragon, Acme, Perfection, Favorite Beauty and other Tomatoes. A. W. LIVINGSTON'S SONS, P. O. Box 278, Columbus, O.

OUR HOBBY

In responding to this advertisement mention GLEANINGS.

STRAW BLACK GOOSE RASP DEW BERRIES

CURRENTS and CRAPES.

ADA Large, Late, Hardy, Prolific, Black RASPBERRY, Latest of all in Ripening.

FIRST-CLASS PLANTS AT LOW RATES.

THEO. F. LONCENECKER,

Correspondence Solicited. 3tdb Dayton, Ohio.

In responding to this advertisement mention GLEANINGS.

1889.

GREGORY'S SEED CATALOGUE.

1889.

Come, Fellow Farmers!

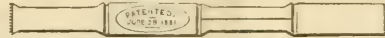
It is the good things and the new things you want. Here is a Catalogue full of them! Do you want tested seed, raised from stock selected with extra care, grown from the best strains, got from the originators? I aim to have mine just such. Do you want new varieties that are really good, and not merely novelties? I aim to have mine such. Do you want seed that the dealer himself has faith enough in to warrant? I warrant mine, as see Catalogue. Do you want an exceptionally large collection to select from? Mine is such. Do you want them directly from the grower? I grow a large portion of mine—few seed-men grow any! My Vegetable and Flower seed Catalogue for 1889 FREE to everybody. JAMES J. H. GREGORY, Marblehead, Mass.

In responding to this advertisement mention GLEANINGS.

J. FORNCROOK & CO.,

MANUFACTURERS OF THE

"BOSS" ONE-PIECE SECTIONS,



Will furnish you, the coming season, ONE-PIECE SECTIONS as cheap as the cheapest. WRITE FOR PRICES.

Watertown, Wis., Jan. 1, 1889.

1-1ld

In responding to this advertisement mention GLEANINGS.

THE . BEST . HIVES

FOR THE LEAST MONEY.

BOTH SINGLE AND DOUBLE WALLED.

If you need any hives don't fail to send for my price list, as I make a specialty of hives, and think I have the best arranged hives on the market, at bottom prices. My hives take the Simplicity frame. 3tdb J. A. ROE, Union City, Ind.

LOOK OUT!

One of the best bee locations in the Fruit Belt of Michigan. Small fruit-farm (44 acres) to sell—Bees and "fixings" cheap. For particulars address

J. O. SHEARMAN,

New Richmond, - 3tdb - Michigan.

In responding to this advertisement mention GLEANINGS.

J. C. SAYLES,

HARTFORD, WIS.,

Manufactures Apiarian Supplies of Every Description. Catalogue Free to All.

3tdb

Send Your Address.

FOR SALE.

Second-hand SIMPLICITY HIVES covered with from three to six coats of white lead; BROOD FRAMES filled with combs almost totally devoid of drone-cells; BROOD FRAMES with tin separators filled with sections and comb. Write for prices.

DR. S. W. MORRISON,

3d

Oxford, Chester Co., Pa.

In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3tdb

Box 11. Higginsville, Mo.



SEEDS GIVEN AWAY.

PRIZE Mixed Flower Seeds (500 kinds), Guine, and 10ct. Certificate for Seeds, your choice, all for 2 stamps (4c). Flower lovers delighted. Tell all your friends.

C. W. PARK, Fannettsburg, Pa.

HONEY COLUMN.

CITY MARKETS.

MILWAUKEE.—*Honey.*—This market for honey is dull; very best sells slowly. Inferior qualities neglected. Choice white 1-lb. sections, 17@18; same, 2-lbs., 15@16; good dark, 1-lbs., 15@16; same 2-lbs., 14@15; fair, 1-lbs., 12@14. Damaged and broken, not wanted. Extracted, white, kegs and ½-bbls., 8½@9; ditto, amber, 7½@8; white, in pails and tins, 9½@10; dark, bbls. and half-bbls., 5½@6½.
Beeswax, 22@23. A. V. BISHOP.
Jan. 10. Milwaukee, Wis.

ST. LOUIS.—*Honey.*—The movement in honey is very slow. Hard to realize satisfactory prices for the shipper or ourselves. Choice white clover, comb, sells freely at 14@15. But extracted in cans about 7½@8. In bbls., 5@6½ as to quality.
Beeswax, 20. W. B. WESTCOTT & Co.,
Jan. 26. St. Louis, Mo.

CINCINNATI.—*Honey.*—Demand is slow for all kinds of honey, with a comparatively small supply on the market. Extracted honey brings 5@8 on arrival; comb honey, 12@16, in the jobbing way.
Beeswax.—There is a good demand, which brings 20@22 on arrival for choice yellow.
Jan. 21. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

NEW YORK.—*Honey.*—The extremely warm weather has brought business in honey to a standstill, and we quote nominally fancy white, 1-lb. comb, 14@15; 2-lbs., 12@12½. Fair white, 1-lb., 12@13; 2-lbs., 10@11. Buckwheat, 1-lb., 10½@11; 2-lbs., 10.
Extracted, basswood and clover, 8@8½. Buckwheat, 6@6½. We expect a good trade in buckwheat extracted, during next month.
Jan. 19. F. G. STROHMEYER & Co.,
New York City.

DETROIT.—*Honey.*—Best white in one-pound sections continues to be quoted at 16@18, with a little less in sight; market will be bare of comb honey before the new crop will find its way in.
Jan. 21. M. H. HUNT,
Bell Branch, Mich.

KANSAS CITY.—*Honey.*—We quote: 1-lb. comb, white, 16; fall, 14; California white, 16; 2-lb. California white, 14; 2-lb. extra Cal'a, 13. Extracted, Cal'a white, 8; Cal'a amber, 7. Beeswax, 20@22.
CLEMONS, CLOON & Co.,
Jan. 22. Kansas City, Mo.

ST. LOUIS.—*Honey.*—Market quiet, but firm. Comb, choice clover, 13@15; dark, 8@10; strained and extracted, in barrels, choice, 6@6½; cans 7@7½; dark, 5@5½. Cans, 6@6½. Beeswax, prime, 20.
Jan. 22. D. G. TUTT GRO. Co.,
St. Louis, Mo.

NEW YORK.—*Honey.*—Market quiet; fine goods very scarce; but as there is no demand for it, there will be no goods left over this year.
Jan. 19. THURBER, WHYLAND & Co.,
New York City.

COLUMBUS.—*Honey.*—Our market remains the same. White comb in 1-lb. sections, 16@18; no demand for larger sections. EARLE CLICKENDER,
Jan. 19. Columbus, Ohio.

ALBANY.—*Honey.*—Market slow and prices weakening some.
H. R. WRIGHT,
Jan. 26. Albany, New York.

BOSTON.—*Honey.*—No change in market prices.
Jan. 21. BLAKE & RIPLEY,
Boston, Mass.

FOR SALE.—One ton of white extracted honey, in kegs and barrels; also amber, or fall honey, of excellent quality, in same packages. Write for prices, stating amount desired. FRANK McNAY,
Mauston, Juneau Co., Wis.

FOR SALE.—First-class extracted honey in 60-lb. tin cans. Having just been liquefied it will pour from cans easily. Will take 9 cts. per pound. Samples sent for 2-ct. stamp. R. I. BARBER,
818 E. Washington St., Bloomington, Ill.

FOR SALE.—I have about 1500 lbs. of nice light honey, fresh from sealed combs, mostly clover and basswood, that I will sell in 175-lb. cans at 8 cts. per lb., or in lots to suit. Sample by mail free.
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

FOR SALE.—I have a quantity of extracted honey in 50-lb. kegs, which I will sell at the following prices: 8c for the white and 7c for the amber, f. o. b. The honey is first class. C. H. STORDOCK,
3 64b Durand, Ill.

Beautiful Laced Wyandottes.

Eggs for Hatching, \$1.00 for 13; \$2.00 for 30. Orders Booked Now.
3tfdb J. W. GRISWOLD ROSE, WAYNE CO., N. Y.
In responding to this advertisement mention GLEANINGS.

S. D. McLEAN
Will sell bees by the pound, Colonies, Nuclei, and Queens, Cheap. Write for terms to
3 9d COLUMBIA, TENNESSEE.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column

POULTRY SUPPLIES. Ground Beef Scraps, fresh and pure at all times. Pure Ground Oyster Shells, Cracked Poultry Bone, Bone Meal, and everything else in this line, at the best quality and at lowest prices. We have large facilities for the manufacture of Poultry Supplies. Send for trade price-list.
John Gardiner & Co., 21 N. 18th St., Philad'a, Pa.
In responding to this advertisement mention GLEANINGS.

HONEY, BEES, QUEENS, SUPPLIES.
Catalogue Free.
OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

CARNIOLAN QUEENS A SPECIALTY.

Largest and Purest Carniolan Apiary in America. Send for descriptive circular and price list. Address ANDREWS & LOCKHART,
3tfdb Pattens Mills, Washington Co., N. Y.
In responding to this advertisement mention GLEANINGS.

4 and 5 PER CENT DISCOUNTS IN FEB. AND MARCH! On QUEENS, BEES, APIARIAN SUPPLIES, JAPANESE BUCKWHEAT, and SEED POTATOES (20 varieties). Send for catalogue giving full particulars.

CHAS. D. DUVALL,
3-64b Spencerville, Mont. Co., Md.
In responding to this advertisement mention GLEANINGS.

DEALERS in Apiarian Supplies, Small Fruit, and Poultry. Send me your circulars and price lists. J. S. LA RUE,
3d Lewistown, Logan Co., Ohio.

LOOK HERE!

A complete hive for comb honey, \$1.30. No. 1 planer-sawed V-groove sections, \$2.75 per M., this month. Price list free. J. M. KINZIE,
3tfdb Rochester, Oakland Co., Mich.
In responding to this advertisement mention GLEANINGS.

CORNS. A SURE CURE.
By Mail, Postpaid, for 15c.
(An agent wanted in every town.)
Address T. G. ASHMEAD,
3d Williamson, Wayne Co., New York.

EARLY QUEENS!
Now ready at \$1.25 each; after April 1st, \$1.00.
J. P. CALDWELL,
3d San Marcos, Texas.

DADANT'S FOUNDATION FACTORY, WHOLESALE AND RETAIL. See advertisement in another column. 3btfdb



Vol. XVII.

FEBRUARY 1, 1889.

No. 3.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES.

SHALL I START ONE?

THIS question is likely to come up in the minds of not a few; and although each one must answer for himself, there are a good many side questions that may present themselves for reply before the main question is reached. On some of these I will try to throw some light, without going through the formality of stating the questions. If you decide that you will keep three or four hundred colonies of bees, it is a pretty clear case that you can not profitably keep them all in the home apiary. Just how many you can profitably keep there, is an exceedingly difficult thing to determine. Supposing that, by a series of careful experiments extending over fifty years, it has been pretty satisfactorily determined that 93 colonies is the largest number that can, on the average, be profitably kept in Mr. Smith's apiary, 20 miles distant, it by no means follows that the same series of experiments would reach the same conclusion on your ground. The same kind of flowers may not be on your ground; the soil may be different, or, if these be alike, the rainfall may differ; and supposing no difference can be detected in any of these, how are you going to measure the number of flowers to be found on the one, two, or three thousand acres that constitute the range of the bees in each apiary? Suppose you have a crop of 6000 lbs. from 80 colonies one year, and the next year from 100 colonies you get 5000 lbs., it does not certainly follow that 100 colonies overstock the ground; for in the last case there may be a bad year, and it is possible that the very next year may

be so much better that 100 colonies shall store 10,000 lbs. surplus. So you see it is a very difficult thing to decide what is the largest number you ought to keep, in order to the greatest profit. I wish I could give you some rule by which you might determine the matter, but I can not; and I am obliged to confess that, after a good many years of experience, all of it on the same ground, I am not able to say with any degree of confidence whether 75, 100, or 125 colonies will bring me the greatest profit. The best I can do is to say that, if your location is an average one, it is not likely you would better keep more than 75 or 100 colonies in one apiary. If any one should accuse me of presumption in attempting to speak so definitely, I am ready to bear the reproof very meekly, and confess that I know little about it. Close observation for a series of years may help you to a more reliable guess as to your own locality.

If you find that 50 or 75 colonies occupy the most of the time that you can spare from other business, it is hardly advisable for you to attempt a second apiary, for you will find that it will make a draft on your time in a different way from the home apiary. Often there is some little thing to be done which needs only a few minutes to do; but if you must go three or four miles to do it the case is quite different.

Suppose you find, or think you have found, that, after you have reached 75 colonies, the next 25 will do a good deal better in an out-apiary, you must still keep in mind that this 25 will entail more expense (I include time and labor, of course, in expense) in proportion than the first 75, and the probability is that you would better keep the 100 at

home if your total crop is greater than from the 75, even if the average yield per colony from the 100 be less than from the 75. In other words, it is well to crowd the bees at home a *little*, rather than to start a second apiary. Whether you need to keep some one watching for swarms, cuts some figure in the account. There may be cases, however, where the extra 25 would turn the balance in favor of an out-apiary. If it is your intention to continue to increase, and you have reached, or nearly reached the limit of the home apiary, and you expect to start an out-apiary next year, it may be better to start it this year. The practice this year on a smaller number will be of advantage to you. In the matter of hauling alone, you need experience—at least I did. Mishaps were quite too common with me at first; and if I had had a large number to haul, the matter might have been serious. Another reason for commencing this year, rather than next, is, that you have no certain tenure of territory; but if you commence an out-apiary this year you may be less likely to see some one else occupy the same ground next year. C. C. MILLER.

Marengo, Ill.

Another thing that you can determine by starting out-apiaries is the value of localities. Some find the out-apiary better than the home apiary, and others not nearly so good; and I remember that, in some cases, there seemed to be a marked difference, without any explanation as to why it was so. This marked difference showed itself year after year. By trying 25 colonies at a time, or even a less number, you can decide what a locality is worth. If it is not as good as your home apiary, you can make a test in another direction. Sometimes an out-apiary will give stores when the bees at home are getting none at all. This is often the case where you can go in the direction of a swamp, river bottom, or something of that sort.

INCREASE, OTHERWISE THAN BY NATURAL SWARMING.

FRIEND DOOLITTLE TELLS US HOW TO MANAGE IT.

A SUBSCRIBER for GLEANINGS says he can not stay at home and care for the swarms which may issue from the 30 colonies of bees which he has, and wishes me to tell him how he can manage next season so as to increase his bees and still have them do good work in making comb honey. After trying nearly every plan of artificial increase which has ever been given, I am satisfied that none of them will give as good results as will natural swarming; but where one is situated as is the writer of the above, of course a substitute for the good old way will have to be resorted to. Knowing that there were times when increase other than natural swarming would be very desirable, I kept a record of all of my experiments while trying the various plans of making swarms, as given at different times to the public, and, according to my views, the two following come the nearest to nature's way of any now before the world. The first is a plan which was adopted by Elisha Gallup, and given to the world some twenty or more years ago, while the latter plan is one I made up out of different hints I picked up here and there. The Gallup plan I have practiced quite ex-

tensively for years, while the other I use almost altogether at the present time. All the particular difference there is in the two plans is that, with the latter, a new queen is given to the swarm, leaving the old one to continue to do duty in the old hive; while with the former the old queen goes with the swarm, the same as she does in natural swarming, thus leaving the bees to rear a queen of their own. By giving each part a laying queen, great gain is made; still the Gallup plan is a good one where one can not rear the queens before he makes the swarms, or feels too poor to buy them. None of the plans of artificial increase should be used till the hive is quite well filled with bees, and the bees themselves are preparing for swarming. When the proper time has arrived, go to any colony from which you wish to take a swarm, and, after having removed the cover and quilt or honey-board, drive the bees out of the way with a little smoke so that you can shave the capping off from some of the sealed honey at the tops of the frames, unless you think they have plenty of unsealed honey in the hive. Just previous to doing this, you should find the queen, and cage her on one of the combs with one of the wire-cloth cages which will push into the comb, as has been so often described. Having both of the above done, close the hive and beat on it with the fist, at the same time blowing smoke in at the entrance, just enough to frighten back the guards as they come out to drive off the intruder. Having the guards all turned back, give the hive several sharp blows, enough to cause the bees to thoroughly fill themselves with honey; and if more than one swarm is to be made, go to the next hive and prepare them in the same way, while the first are filling themselves; otherwise you will have to wait till the bees have their sacs full. When this is accomplished, set the cap of any hive on a wide board a little way off from the old hive (any box will do), and proceed to shake the bees off the frames till you think you have about three-fourths of them, shaking them in front of the cap or box on the wide board, into which they will run as fast as they are shaken off, if the same is raised up a bee-space on the side next where they are shaken. Lastly, take the frame having the queen on it, and, after uncaging her, shake her and the bees off this frame, letting them run in with the others. Now close the hive, when the returning bees from the field and what were left on the combs and about the hive will make the colony in about the same condition it would have been in had it cast a swarm. Next take the cover having the bees in it; carry it to the shade of some tree, and, after setting it down, lean it up against the tree with the open side out, exposed to the light. Leave them thus while you are making other swarms, or for about an hour, when they will conclude they are a separate colony, and will behave just like a natural swarm, having clustered in the box the same as a swarm does on a limb. Now have them as you would a natural swarm, and they will work the same, or as nearly so as is possible to have bees do outside of natural swarming.

The next way, and the one which I prefer when I have laying queens to spare, is to proceed the same as above till you get ready to shake off the bees, when they are to be shaken into a box instead of in front of a cap. This box is to be made of a size to hold about half a bushel, the two sides of which are to be of wire cloth, one permanently

nailed on, and the other is to have the wire cloth nailed to four small strips, so that four small nails, one through the center of each strip, will hold it fast to the box, yet make it readily removable when we wish to get the bees out. In the top of the box is to be bored a hole of the right size to admit the small end of a large funnel, such as is used in putting up bees by the pound, and over this hole is to be fixed a slide so that it can be closed as soon as the bees are in. Having the box and funnel, proceed to shake the same amount of bees down through it into the box as you did in the former case; but instead of putting the queen with the bees in the box, uncage her and set the frame having her on back in the hive. In this case you leave the old colony in the same conditions in which they would have been had they cast a swarm, with the exception that they have the old queen with them, so as to keep up egg-laying all the while. Now carry your box of bees to your bee-cellar, or some other cool dark place, and leave them undisturbed for four hours, when you are to go and get a queen in a round wire-cloth cage, from one of your nuclei, or one which you have bought; and after getting where the box of bees is, jar the bees to the bottom of the box, by setting it on the floor suddenly, so that they will not be running out while you are putting in the queen, and immediately let your queen run through the hole into the box. Now close the hole and leave the bees till sunset or the next morning, when you will find them clustered and ready for hiving, the same as a natural swarm would be, having accepted the queen which you gave them, as their own mother. Hive as before, and the work is done.

In using this latter plan it is best to take the bees between the hours of 10 and 12 A. M. In writing this out it seems like a good deal of work; but where making many swarms, the work goes on rapidly, as the bees are filling themselves while you are working, so that there is no waiting. In this way swarms can be made about as fast as natural swarms could be cared for, while they work nearly as well after they are made.

Borodino, N. Y., Jan. 17, 1889. G. M. DOOLITTLE.

Friend D., if I may be permitted to make a suggestion I would tell a novice not to risk shaking the queen with the bees in front of the hive-cover. I have seen the queen a good many times, instead of dropping down to the bees, take wing; and when they are on the wing they do not always go in with the bees. Several times I have had them go back to the old hive, where I would find them on one of the combs. I would take the queen off and set her down among the moving bees, and be sure she crawled into the box, then there will be no danger of getting two queens together. I have also found bees from some colonies that would, a large part of them, return to the parent hive after they went out for pollen or honey. Your manner of manipulation, however, may prevent this largely; and perhaps if you have three-fourths of the bees *with the old queen also*, the ones that went back would not make any material difference. Lastly, I would by all means put a comb with unsealed brood, with an artificial colony of any sort. I have tried over and over again this comb of brood, and so have our boys, and we are so

fully satisfied that it helps to make the bees stay in a new hive, that I never omit it. Sometimes, where we find the bees have absconded, I ask the question, "Did you give them some unsealed brood?"

Almost invariably the reply is, "Why, I was too busy just then;" or, "I declare, I forgot it," or something of that sort.

JAPANESE BUCKWHEAT.

COMPARATIVE TESTS WITH THE COMMON BUCKWHEAT.

I SEE several reports of the Japanese buckwheat, but you have never yet, I believe, treated the readers of GLEANINGS with cakes made of Japanese buckwheat, so, now, let's have some of them. But before we can have the cakes we must produce the buckwheat, so I will report that first.

Last season I sowed it at three different times, as much for my bees as for the grain. The ground was an old worn-out piece of farm land that had been farmed to corn and wheat for many years, until it would not produce a crop of either, worth the cost of raising. I do not know the amount of land or the amount of seed I used, but probably about two acres of ground. The seed was not good, as some portion of it had been sprouted when harvested, and so did not grow when sown. It stood much too thin. It might easily have been as thick again on the ground. As for bee-pasture, it was a fair success. They worked on it pretty thickly. I did not, however, get any direct surplus honey, yet I could distinctly tell the buckwheat flavor in some of it. Well, I got about 50 bushels of nice grain, which I have refused one dollar per bushel for. I also had a fair chance to test it with the common kind.

A neighbor sowed 3 acres, on about the same grade of land, with the common seed. I wanted him to sow the Japanese but he thought he could not stand the pressure of four dollars a bushel for the seed. He harvested 26 bushels from the 3 acres. He has since said if he had sown my kind he would have got at least 75 bushels.

Now, here come the cakes. I took 3 bushels to the mill, and charged the miller to be particular to have the mill well cleaned, so there should be no mixture of any other flour or corn meal with my flour, that could possibly add to or detract from its bulk or quality, as I wanted to have a fair test of it. His report is, first, that it gave about five pounds more flour to the bushel than any other he had ever ground; and, second, that it made the whitest flour he ever saw, from buckwheat. And now I am having the very best cakes every morning that I ever had in my life. My cook says that I eat from 12 to 16 every morning. Be that as it may, my breakfast is a good one; and by the way, she puts away the Japanese buckwheat cakes, she had better keep still or I shall tell how many she eats.

I had a small plot of ground that I raked over and sowed the Japanese buckwheat on, as late as the 9th of September, thinking it might furnish a few blossoms for the bees; and when the frost killed it it was 18 inches high, and perfectly loaded with set grain, some of which began to ripen. If it could have had two weeks more time it would have given a pretty good crop of grain. A. A. FRADENBURG.

Port Washington, O., Jan. 21, 1889.



37 BUSHELS OF JAPANESE BUCKWHEAT FROM $\frac{1}{2}$ BUSHEL OF SEED.

I got one bushel of Japanese buckwheat of you last summer. I let a neighbor have half of it. I sowed the other half on one acre of land, and harvested 37 bushels of nice buckwheat. I am sure there would have been over 40 bushels if it had been well saved. Other buckwheat didn't yield half as much. I could not tell any difference in bees working on the two kinds. I sowed on the 26th of June.

Jonesboro, Ind.

C. J. EVANS.

43 BUSHELS OF JAPANESE BUCKWHEAT IN TWO YEARS.

I started with $\frac{1}{4}$ lb. of Japanese buckwheat, which I got of you two years ago. From the $\frac{1}{4}$ lb. I harvested 47 lbs. I sowed the 47 lbs. on $\frac{3}{4}$ of an acre, and it yielded 43 bushels, or about 50 bushels per acre.

PERLEY LANGWORTHY.

Riceville, Pa., Jan. 9, 1889.

In addition to the above, and what is said about this buckwheat in the last issue (pp. 58 and 63), we would refer you to pages 95 and 99 of this issue.

BEARS AND HONEY.

SETTING OUT FRUIT-TREES; MOVING BEES SHORT DISTANCES.

I HAVE just been reading with much interest A. I. Root's travels in California, and his visits with the bee-keepers. Oh how I should like just such a trip! But I should have to stay long enough to kill some of those bears and other wild animals. The idea of a man letting a bear come to an apiary of 11 colonies and eat them all up, and then letting the old fellow go away in peace is amusing. If it had been my case, I would have made him pay for the bees, if there was money value enough in his hide and meat and tallow to do it. But if there was no value in the old fellow, why, then I would have killed him to get even with him, and get him out of the way.

HOW TO SET OUT STRAIGHT ROWS.

On page 979, Dec. 15, Mr. Root speaks of seeing orange-trees that were set in such perfectly straight rows, and wants to know if some of the readers of GLEANINGS can tell how to do it. If the ground is not too hilly, or surface too rolling, get out as many small stakes as you propose to set trees. Make the stakes about one inch in size, preferably round, and in length about two feet. The next thing to do is to get those stakes stuck in straight rows. You can accomplish it very nearly by marking off the ground with a corn-marker, marking the ground both ways. Stick the stakes in the crossing at every third or fourth crossing, according to how close you want the trees. With a man to sight through the rows, and another man to move the stakes a trifle one way or the other, if they are not quite right, straighten the rows. It is a great deal easier to move a stake a little than to move a tree a little after it is set. Having straightened the rows, set the trees. First we want a setting-board, which can be made out of a piece of fencing, 6 inches wide and 8 feet long for small trees. Bore a $1\frac{1}{2}$ -inch hole exactly in the center of the board, both endwise and sidewise; then, say 3 inches from each end of the board, bore a $1\frac{1}{2}$ -inch hole. Saw out a strip crosswise, $1\frac{1}{2}$ inches wide, the center of the board, on one side, until it meets the auger-hole. Our board will now have a notch in the center and a hole in each end, like this:



We want two stakes, about a foot long, and small enough to go through the end holes of the board.

Lay the board on the ground and crowd it up till the stake is in the center notch, snug into the notch in the board. Let the stake be in the notch as far as it will go, then stick your two short stakes into the holes in the end of the board, and down into the ground firmly. Pull up the center stake and take away the board. Dig out the place for the tree to stand in, then put the board back again, so that the two small stakes are in the end holes of the boards as before. Place your tree in the center notch of the board, and fill in with dirt. Be sure that the tree stands straight. When the place is about filled up, the board can be taken away so that a nice job can be made. The tree will, of course, stand in exactly the same place that the stake did. We can now pull up our two small stakes, and go to another stake and set another tree in the same way.

MOVING BEES SHORT DISTANCES.

We often read in the bee-papers directions for moving a hive of bees in the apiary, something like this: Move the hive a foot or two a day, until it is in the exact place where it is wanted. Now, friends, I would not do any such thing. Some time when the bees are all in the hive I would just pick it up and put it where I wanted it, and done with it. We move bees more or less every spring, to equalize our yards; in that case we move them four or five miles or so. But last spring we wanted to move about half of one of our out-apiaries, to get them further from the public highway. There were, in quadruple hives, 69 colonies in 4 rows, running east and west. We wanted to move the east

half, and put them *west* of the west half, a distance of eight or ten rods. This apiary was 5 miles from home. To go out there and move those hives a foot or two a day, mixing them up among the other hives as we worked them along, would have made a big job, and no doubt would have resulted in nearly all of the young bees being left behind in the hives that we passed in moving. Well, we made all of the new stands at the west end of the apiary ready to set the hives on, and got every thing ready to move, and then went home. The next morning, May 18, it was very cloudy, and raining a little, and it promised to be a wet day. We put the wheelbarrow into the wagon, and started. As bees were not flying when we got there, we just set one of those big hives on to the wheelbarrow, and wheeled it to the stand where we wanted it, and there located it. We then went back and got another, and kept on until we had moved all we wanted to, about 35 colonies. Shortly after all were moved, the weather cleared up and the bees went to work; and before noon the moved bees were bringing in pollen. There were a few bees flying about the old stands, looking for home, for about two hours; after that, every thing was running as usual. As far as I could see, the moved bees did just as well as those not moved. Then what is the use of all this fussing, hitching along a little to-day and a little to-morrow?

E. FRANCE.

Platteville, Grant Co., Wis.

Friend F., your remarks in regard to setting trees, in connection with what is said on page 87, will doubtless enable any one to work rapidly and accurately. I think I should prefer to stretch a line, however, rather than to have so much sighting.—I am a little surprised at what you say about moving bees short distances. I am very well aware that some colonies stick to their old home, without any trouble; and at other times the loss of bees in spring time will so reduce the colony as to prove fatal to it. At one time I attempted to move a strong colony of Italians during the working season, from one part of our town to the other. Enough bees went back to their old stand to make a small-sized swarm. These were brought home on a comb, placed in a box, and shaken in front of the hive. They ran in like a natural swarm; but the next morning, nearly if not quite all of them returned to their old stand, laden with pollen and honey. This they kept doing until I got tired of carrying them home every night. Now, it is possible, but not very probable, that, had I left no comb or box for them to cluster in, they might have returned to their new location. At another time I purchased a box hive of a neighbor, moving it perhaps an eighth of a mile. This moving was done in the winter time. Within ten days or two weeks, however, we had a very warm day, and the bees flew profusely. Well, so many bees went back to their old stand that the owner told me there was a pretty fair swarm circling around where their hive used to stand. That night they scattered about on the trees and bushes, and were chilled to death. The next day, more of them went back; and the result was, the colony that cost me \$5.00 died for lack of bees to keep the brood warm, I

have seen this same thing happen so often, that I think novices should be very careful indeed about moving bees short distances. When they are moved so far that they do not meet familiar objects on their first flight, of course they will all go back to the hive. An old veteran like yourself, who keeps an eye on the movements of the bees, would probably not lose very many.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

FRIEND ROOT:—The inclosed clipping was taken from the *Lutheran Observer* of a recent date. If you find room in *GLEANINGS*, please insert it and give a reply to such damaging nonsense as that.

H. W. WALKER.

Somerset, Pa., Jan. 15, 1889.

Below is the clipping referred to:

SCIENTIFIC LEGERDEMAIN.

In these days of adulteration,

When all things are not what they seem,
And every thing is something else,

it is no more miraculous that olive oil should be squeezed out of a peanut than that Java coffee should be ground out of the chicory root, or that black pepper be only another name for pulverized cocoanut shells. Science is now making such rapid strides toward helping us in our gastronomic needs, that Nature herself must get out of the way or she will be run over. Even the poor honey-bee was accused, not of laziness, for that would have been too palpable an injustice, but of being too slow, and spending too much time over the clover heads.

"I will remedy that," said Science.

And she did. Shutting up the bees, she knocked the head out of a barrel of glucose and told them to go to work and help themselves, which they did faithfully. Their long journeys to and from the flowering fields being done away with, they had nothing to interfere with their getting down to actual business. The scheme was a success, for the honey was piled into the combs in treble abundance and in one-third the usual time.

And yet Science wasn't satisfied.

Greedily she put her wits to work.

"What's the use of going to the expense of buying bees? I can make the comb quicker and as well as they; and as for the honey—well, glucose is honey!"

And so the occupation of the honey-bee being gone, so far as it has any hand in what is known as the "honey of commerce," it now confines itself in a small way to home manufacture, samples of which, if the reader particularly wants, he must particularly search for.

The above has just commenced going the rounds of the press, and it really seems as if the religious press were worse than any other in taking up and scattering broadcast these false and slanderous statements. Friend W., as you will notice, says he took the clipping from the *Lutheran Observer*, and we notice that they give credit to *Table Talk*. Now, friends of the *Observer* and *Table Talk*, will you not correct the misstatements which I presume you have unwittingly made? For three years past we have been fighting down this falsehood. Many papers have recalled the statement, but it seems to be cropping out again. Surely you would not knowingly injure an honest class of people, if you knew it. More than two years ago I published a standing offer of

one thousand dollars to any one who would tell us where this spurious comb honey was manufactured. Every one has been obliged to give up—there is no such thing, and there never was. Will you not at least briefly correct the wrong you have done? Bee-keepers are as anxious to put down fraud and adulteration as are the cheese and butter makers; but they do not like to have their industry damaged by having the people prejudiced by false statements like the above.

THE GREAT NOVELTY OF 1889.

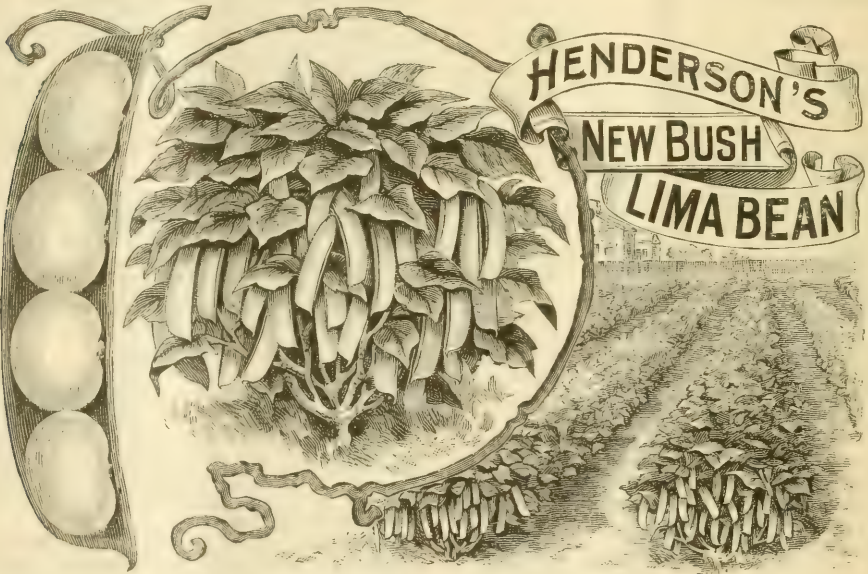
A LIMA BEAN THAT GROWS ON BUSHES, AND DOES NOT REQUIRE POLES.

ALTHOUGH I have never seen this new lima bean except in a dry state, yet I am so well satisfied of its excellence that I purchased 1000 25-cent packages. In regard to the origin, we extract the following from the February issue of the *American Agriculturist*:

The history of the new bush lima bean is rather interesting. As far as can be traced it originated in the mountains of Bedford County, Va., in a locality known as the "Peaks of Otter," in the garden of a humble colored man, who was bright enough to notice a single plant that formed a bush

delicious lima beans, and is at least two weeks earlier than any of the climbing limas, being fit for market about the middle of July, in York State, and from that on until frost. The only thing against it that I know of is its small size compared with the limas that grow on poles, the dry beans in the packets being about the size of those shown in the cut, *only after being soaked in water over night*. Perhaps, in a green state they are considerably larger. We are not permitted to sell them for less than 25 cents each packet; 5 for \$1.00, or 12 for \$2.00. A packet contains about 25 beans. We are permitted, however, to offer it as a premium as follows: We will send a packet to every present subscriber who will send us \$1.00 and the name of a new subscriber to GLEANINGS. If you are too busy to hunt up a subscriber, send us \$1.00 to extend your subscription for 1890. We append the following testimonials from Henderson's catalogue:

The Dwarf Lima bean was a surprise indeed. Who would ever have thought it possible to transform the climbing, rampant-growing Lima bean into a bush! But here it is before my eyes, a bush Lima, loaded with pods, and that so early in the season as to remove one of the principal objections—their late ripening—to growing Lima beans. This, combined with its independence from the troublesome and unsightly poles, must make this new vegetable wonder a welcome acquisition to every garden.—DR. F. M. HEXAMER, Office *American Agriculturist*, New York, Sept., 1888.



Copyright, 1888, By Peter Henderson & Co.

among a patch of tall limas. He saved the seed from it, knowing nothing of its value except that he saw that for his own convenience it could be grown without poles. The second season he had quite a patch of it, and gave some to his neighbors, until it ultimately found its way into the hands of a seedsman, who purchased the entire stock. Had the colored citizen only known the prize he had struck, and increased the stock, one acre of this new lima bean would have given him money enough to purchase a good-sized Virginia farm.

You see, friends, it was a sport, just like my white Boston Market lettuce.

Henderson states in his new catalogue that it does not run at all, grows about 18 inches high, produces enormous crops, of

The new Bush Lima bean is the greatest acquisition to the vegetable garden attained in this century. Growing exactly like the common String or Bush bean, its simple culture is identical. It will find a place in thousands of gardens where the old climbing bean is unknown, as not one cultivator in one hundred can go to the trouble and expense of the poles for the old Lima. In the Bush Lima we have not only a vegetable of the easiest culture, with a flavor equaling, if not surpassing, the pole Lima, but above all a bean giving as heavy a crop, and beginning two weeks earlier.—PETER B. MEAD, Mamaronck, Westchester Co., N. Y.

FROM THE LARGEST GROWERS OF BEANS IN THE WORLD.

Your Bush Lima bean, which we have tested very thoroughly this season, is a most valuable variety. It is strictly a bush bean, growing from 15 to 18 inches high, with no tendency to climb; makes a wonderful profusion of pods, some single plants containing 100 good pods, and the majority averaging from 50 to 75 pods per plant with ordinary field culture. The cooking qualities are unexcelled, if indeed they are equaled by the Pole Limas. We think this bean is destined to become the most popular variety in the entire list.—N. B. KEENEY & SON, LeRoy, N. Y.

FLOATING APIARIES IN EGYPT.

HOW THE BUSINESS WAS PROSECUTED OVER 100 YEARS AGO ON THE NILE.

THE following sketch we copy from the *Deutsche Illustrierte Bienen Zeitung* for November, page 44. The engraving also from the same source we reproduce. The article was written by Mr. T. Kellen, of Luxemburg. W. P. Root, our proof-reader, translates as follows:

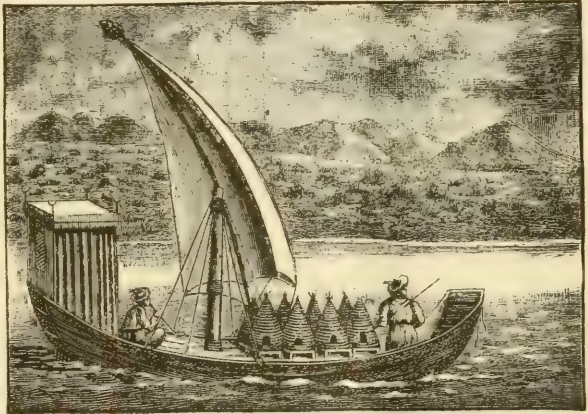
Not long ago I discovered in the city library of this place, Luxemburg, a French work on bees, which for a century had been unremoved, leaves uncut, and was covered with venerable dust and finger-marks. In this work I found a very interesting notice in reference to portable apiaries of that period. The author of the above work, B. E. Manuël, procured some notes of a description of Egypt, and added a few concluding observations of Reaumur thereto. From this and other histories of travels, as well as from Maillet's Description of Egypt, published in 1740, it appears that, in the last century, there were a great many colonies of bees kept in the land of the Pharaohs, and that a very lively business was maintained therein, quite unlike what we have in our own country. Dr. Westhau reports, in a description of a travel through Egypt, in 1702, the following: "In many places I found apiculture greatly hindered, notwithstanding the inhabitants manifest much interest in it. In the season of bloom they move with their bees, now here and now there, in order to fill their hives with honey."

In the last century there was found, with all of the ignorance and wildness of the inhabitants, an occasional trace to remind one of the previous luxury of a keen and diligent generation, long past. One of the most noticeable evidences of their activity was the annual sending of their bees to remote districts, that they might secure pasturage, which occasionally failed them at their own stands.

As Upper Egypt is hotter than Lower Egypt, and the land there is freer from the inundations of the Nile, the honey-plants there develop at least six weeks earlier. The inhabitants were fully aware of this fact, and availed themselves of it for the benefit of their bees. In Lower and Middle Egypt they placed a certain number of colonies of bees, which were often kept in jugs and bowls, and often in cylinders or baskets made of burnt clay, or made out of withes braided, and besmeared with Nile slime, made expressly for this purpose—forerunners of the portable bee-hives of Swabia. If the hives were required at the upper end of Egypt, they were transported thither, so the bees could visit the neighboring honey-plants and shrubs. When the crop in Upper Egypt was exhausted, they floated the skiffs a few miles down stream, and waited there as long as honey could be found in paying quantities.

At the beginning of the month of February they arrived at Lower Egypt, where they delivered the hives back to their owners. The latter then sold the entire product at wholesale in Cairo. The bee-

keepers from Upper Egypt, after they had disposed of their products in the region of the delta of the Nile, and had secured what honey they could there, returned again up stream to their homes. Unfortunately, hitherto history has furnished us no details in regard to portable apiaries in this land of early antiquity, which are authentic; nevertheless, it is easy to conjecture that that inventive people, as the valley of the Nile bears them witness, will convert it, as they did a century ago, into the business of portable apiculture. One may easily believe that Egypt first suggested the same business to Greece and other lands. The Roman agricultural writer, Columella, writes (*De Re Rustica*), Book IX., chapter 14, in replying to Celsus, that in Achaia the bees from Attica and Eubœa, on all the Cycladian islands to the island of Skiros, and from the various Sicilian coasts to Hybla, were cultivated for honey. This custom was, in all probability, introduced from Egypt at the time of Solon, for the civilization of Egypt is unquestionably much older than that of Greece. Before Solon arose as reformer in Athens he traveled through Egypt, and learned there how to make many im-



A FLOATING APIARY, AS THEY USED TO DO IT ON THE NILE.

provements which he afterward made useful to his native land.

But how stands bee culture now in Egypt? When even the fellahin and Copts conspire to drive out apiculture, no more will be read in modern histories of travels in Egypt in regard to movable apiaries; and no traveler will see any more the skiffs on the Nile, laden with hives. This is easy to be seen, when one reflects how downtrodden Egypt is under the foot of the Mohammedan.

I am sorry that the original manuscript did not give us more particulars. For instance, did that chap in the back of the boat have nothing to do but smoke his pipe? Were the bees fastened in the hives during the trip, or did they work along the shores and "catch up"? Will eight hives of bees, as shown in the cut, pay the expenses of the whole establishment, with two men to run it, letting one man smoke most of the time "to boot"? If the bees are of the *Egyptian* "denomination," I should think the house in the stern might come quite handy.

S. I. FREEBORN'S REPORT FOR 1888.

ALMOST 120 LBS. PER COLONY, AND AN INCREASE OF FROM 265 TO 349.

As requested, I hand you my report, also some items of our work and success for 1888.

I put in winter quarters, in the fall of 1887, 300 colonies—115 at the home yard, and 185 at Sextonville. They were wintered in two underground caves, or bee-cellars, 12x24, made with double doors, and covered with three feet of earth, with sub-earth ventilators at the bottom, and a boxed pipe running out at the top for upward ventilation. The one at home has a brick chimney, with a stove ready to fire up should circumstances require; but no fire was built when the bees were in, as it never went lower than 42°, and frequently reached 46° above. The hives were ventilated, mostly at the bottom, by raising them one inch in front of the bottom-board, except the lower tier, which was raised one inch all around.

They wintered fairly well. Most loss was from the death of queens or from starvation. I lost some by being deceived in the weight of the hives, there being a great amount of pollen capped over with the honey. There was so much that the hives were quite heavy after the bees and honey were all out. I commenced taking out bees Apr. 11th; finished Apr. 14th. The spring was very unfavorable, and we did more feeding than ever before, in one season. We fed inside of the hives while the weather was cool, to prevent starvation. Afterward we fed in the open air when warm enough to be safe to do so, to promote brood-rearing, and we kept it up far into June, until clover bloomed. So unfavorable was the spring that there were few if any more bees when clover bloomed than when first taken out of the cellar. From all causes, we lost, up to June 1st, 35 colonies, leaving us at home 100; at Sextonville, 165 colonies. Our outfit for the season was 265 colonies; 200 supers, or hives, of empty comb; 75 empty hives; 200 pounds of wax; 2 extractors; 10 200-pound barrels left over, and 50 more engaged, with two young men to help—one from Canada, with some experience, the other only one year from Norway, 18 years old, without experience, but very anxious to get some, and he *got it*, too, he thinks. These were my outfit to run for extracted honey for 1888. From the outlook I thought the above sufficient, especially as white clover was badly killed with us, and it was the off year for basswood. White clover amounted to but little in the way of surplus; but with the aid of sumac, lion's-heart, and other sources, bees were in fair condition for basswood harvest, which commenced about July 12th and lasted 16 days.

Our 165 colonies at Sextonville are near the timber, and were not moved during the season. The home lot had to fly about four miles to get to much basswood. We moved 35 into the timber, and intended to move the rest; but the roads were so exceedingly rough at the time, that we gave it up. Those that we moved did finely, gathering much faster than those at home, thus showing that, though bees will carry honey from four to six miles, they can gather it much faster nearer home.

During the 16 days of basswood harvest we realized how fully employed 265 colonies could keep three or four men when they fairly got on a rampage. They worked and swarmed with a vengeance; and had we used all of our surplus hives

and combs we could soon have had them filled with young swarms. I think about 1000 would have been their capacity if we had let them have their will in the matter; but by fooling them every way we could, we had only 353 at the end of the season.

Our surplus of basswood honey was 18,000 pounds. After basswood we moved the 35 that we moved to timber and 76 left at home, 18 miles, to work on mint or any thing else they pleased to get.

The moving of these bees proved to be the most disastrous of any of my experiences. The night the first lot was ready to go was the hottest night of the season; and for the first time in my experience, being unable to attend to it personally, I was obliged to see the boys start with 3 loads (35 swarms), without me. The result showed that I had good reason for apprehension, for they had the luck to kill 16 colonies. We moved the rest, and had 90 left out of the 106. They made about 7000 pounds of mint honey in the three weeks that it lasted. The mint proves to be a fine honey-producing plant; it stands drought like a salamander, and rain affects it but little. It seems to me that it might be the most promising plant to raise for honey of any thing in my knowledge, especially where the ground is sandy.

The Sextonville lot were about 5 miles from the Wisconsin River, but they carried considerable mint honey that distance. It was somewhat mixed with fall honey. We took from them 6000 pounds more, which makes our crop 31,000 pounds of extracted honey, and 600 lbs. of comb honey. With better preparation I could have done better, as I could have used with profit more foundation. I had about 60 hives of full drawn-out comb, but I could not stop extracting to prepare more. I am glad and thankful to get the crop that I did.

My profit comes from the sale of honey, as I sell no queens or supplies. To get this 31,600 pounds of honey cost a great amount of work with teams, men, and brains. I don't see how cripples or lazy folks could handle them if they did it the way we did. Our 349 colonies are in the cellars before mentioned; 130 at home, 219 at Sextonville: one queenless, and I sold 3 swarms.

S. I. FREEBORN.

Ithaca, Wis., Dec. 20, 1888.

Friend F., the above is indeed refreshing. Ernest remarks that it sounds like old times instead of like a report for the season of 1888. Now, besides your yield of honey, you have given us some very important facts which need a little emphasis. One is, that it does pay to have bees as well as every thing else close to their work. The bees that had to fly about four miles did something, but not very much. The 35 colonies that were moved, at once gathered honey much faster than those left at home. I suppose the great secret of your success is the immense basswood forests you have written us about before. If you have a good season next year, if you will send me a telegram at its highest I will try to go up and report for the readers of GLEANINGS. In regard to the mint mentioned in the above letter, I will explain to our readers that friend F. has sent us a sample of the honey, and a package of the plants, with the accompanying letter:

We send you a sample of mint honey, or, as some call it, "bergamot," which to our taste is preferable to the famous white-sage honey of California.

One peculiarity of it is, that it will scarcely granulate. Having had it all winter in unsealed combs, without any visible granulation, we also consider it an excellent honey for winter stores. We also enclose a sample of the plant itself from which the honey was obtained.

S. I. FREEBORN.

Ithaca, Wis., Dec. 19, 1888.

The honey sent us is so thick that it will hardly run when the dish containing it is turned over. As mentioned above, it shows no sign of granulation whatever, although it has been left out in the cold for a week or two. The quality is excellent, with the exception of a little flavor of fall flowers. In 1878, Mr. H. Stewart, of Orion, Wis., from the same county that Mr. Freeborn lives in, sent us a sample of the mint. Prof. Beal pronounced it *Monarda Bradburiana*. It is nearly related to the horsemint of Texas. The plant also grows in our own locality, and it is called around here balm, or wild bergamot. Perhaps it is better known under the name of wild bergamot than any other. Without question, it will pay beekeepers to look up patches of this wild bergamot, and locate hives near them during the proper season. I believe it is found along the low grounds of the Mississippi River, in many different places.

PACKING COMB HONEY FOR SHIPMENT.

SUGGESTIONS FROM WM. MUTH-RASMUSSEN.

WHERE wood is employed, I suppose that great accuracy can never be attained, on account of the unavoidable shrinking and swelling. Yet, the nearer we come to accuracy in getting out material, the less will the subsequent work be. This is particularly noticeable in packing comb honey. A slight variation from a fixed measure may seem a trifling matter in the width of a single section; but when 6 sections are placed side by side it makes quite a difference. I use packing-cases holding 48 sections, and without glass. This style suits my trade. I have had sections which were so wide that they would not go down into their place in the packing-case, and had to be whittled on the edge; yet their extra width was not sufficient to attract my attention when they were folded, but was only too apparent when it came to packing them for shipment. As a rule, however, there is a little room to spare in the packing-case, varying all the way from a hair's breadth to a quarter of an inch. To prevent the sections from moving, I crowd them all up against one side of the case, and then stuff a wad down between the opposite side and the section. This wad, a little shorter than the inside length of the case, is made by loosely folding a newspaper until it is thick enough to require considerable crowding to get it down into its place, and, being loosely folded, it will have elasticity sufficient to keep the sections steady. The projecting end folds over on top of the sections, and serves to withdraw the wad before the sections are lifted out of the case. I do not know of any other way of keying up the sections; but if other comb-honey producers have something different or superior for this purpose, I should be pleased to have them describe and illustrate their methods in GLEANINGS.

To get at something better, if possible, is my principal object in writing this.

WM. MUTH-RASMUSSEN.

Independence, Inyo Co., Cal., Jan. 7, 1889.

Friend M., it is true that a slight variation in measurement sometimes makes a great deal of trouble, and it behooves us all to have our sections and every thing else accurately made. Your wad made of folded newspaper is a tiptop idea; and until somebody else suggests something better or neater, I think we should do well to adopt it.

PREDACEOUS BUGS.

PROF. COOK DESCRIBES THE BUGS THAT MUST NOT BE STEPPED ON.

IN GLEANINGS of Nov. 15th, I described the wheel-bug, *Prionidus cristatus*. I now send an excellent figure of this interesting insect, which is a common one in our Southern States. The female of this wheel-bug (Fig. 1) lays in a group about seventy eggs. These are bottle-shaped, and

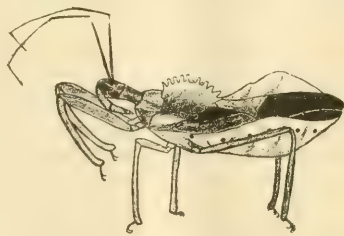
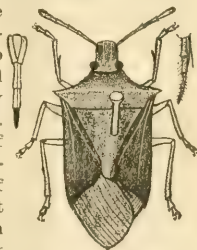


FIG. 1. PRIONIDUS CRISTATUS.

appear as would many bottles standing side by side. The young only, resemble the mature insect in form and habit. They are blood-red, and, like the adult, pierce and suck the life from scores of injurious species.

I wish now to call attention to another bug, the soldier-bug, *Podisus (Arma) Spinosus*, Fig. 2. This has a short sunken head, and so reminds us of our injurious species like the black squash-bug, the terrible chinch bug, and the destructive tarnished plant-bug which is sometimes so fatal to the strawberry and almost every year to many of our garden vegetables. Thus this soldier-bug, one of our valued friends, closely resembles in form several of our most dreaded pests. Yet the beak is stronger, while in the plant-destroyers the beak is slim, as will be seen by the FIG. 2. SOLDIER-BUG. figure, where the beak of the squash-bug is shown with that of the soldier-bug.



The spined soldier-bug is a gray lavender or brownish yellow in color. The specific name comes from the sharp spines on the side of the thorax. The figure is magnified twice, as is also the wheel-bug in Fig. 1.

In pinning all insects, except beetles and bugs, the pin is passed centrally through the thorax. In pinning bugs we always pin through the little triangle (Fig. 2), technically known as the scutellum, of the meso-thorax. In another article I will show how to pin beetles.

The spined soldier-bug is one of our most important predaceous insects. I have seen it dining on the grubs of our common potato-beetles, and its appetite is not easily satisfied; on the large fine tent caterpillars, and on several others of our most dreaded insect-pests. Thus in the future, when we elevate our noses in contemptuous derision of all bugs, let us bear in mind that some of them, notably the wheel-bug and spined soldier-bug, are our good friends, even fighting to rid us of our foes.

Agricultural College, Mich.

A. J. COOK.

CALIFORNIA.

ITS WONDERFUL CAPABILITIES, AND ESPECIALLY THE DIFFERENT RESULTS OBTAINED IN LOCALITIES BUT A SHORT DISTANCE FROM EACH OTHER.

FRIEND ROOT:—Your travels in California are quite pleasant reading; but, like all those who have not spent years here in various parts of the State, you generalize from particular instances much too freely. For instance, you say (p. 975), "A little neglect in irrigation, and your strawberries, corn, aye, and even orange-trees, are 'gone dead,'" and several other remarks of a like kind; yet at my place (near Santa Paula) I could have shown you tons of fine corn which never had one drop of water, from planting to husking—either rain or irrigation. My ranch is without water except what I catch in tanks and cisterns. I can show you dozens of thrifty oranges, lemons, pomelos, and other citrus trees that had half a pail of water each when set out, and no more, except the natural rainfall. We have tomatoes every day in the year, without irrigation. Fig-cuttings planted two years ago are now large bearing trees, a foot in circumference. I have now growing, since 1884, when I homesteaded my place, the following fruits: Apples, pears, olives, quinces, apricots, almonds, walnuts, figs, nectarines, prunes, plums, cherries, guavas, persimmons, and other Japanese fruits, oranges, lemons, loquates, pomegranates, pomelos, besides small fruits, grapes, and some rare kinds like *hovenia dulcis*, *zapote blanca*, etc., and all these are grown without irrigation, almost at the top of a mountain. The secret lies in thorough cultivation. Yet, as a *paying crop*, I should never think of planting strawberries, for example, though I could make them grow and bear some, almost any time of the year.

The truth is, one never knows what will do well on a piece of ground until he tries it. Nor can you be sure of varieties paying in untried localities. For example, take my nectarines. In 1884 I planted Hardwick, New White, and Boston nectarines. In 1887, the Hardwick bore 150 lbs. to the tree. The others bore not one. In 1888, the Hardwick bore 175 lbs. to the tree. The others bore a dozen pounds. My peach-trees varied from 425 lbs. to 20. My apricot-trees showed me that the Royal and Hems Kirk here bore almost ten times as much to the tree (about 200 lbs.) as the Moorpark and Peach apricot; yet 6 miles away the latter kinds are the choice varieties. One mile east of me apricots do little or nothing, while pears are a success. My pears are a failure. I planted 150 trees in 1884, and have got a dozen pears so far. So I might go on through the lists of fruits, but one more example

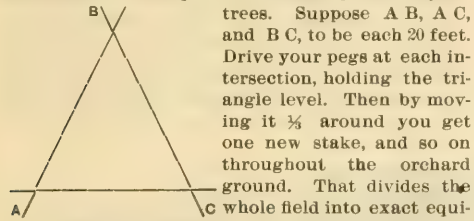
will suffice. In one part of my cañon, near the house, I have three English walnuts, not two years old, from the nut, all over 9 feet high, and one over 11 feet, an almost unparalleled growth. Not far away I have three others in like good soil, having had like care, and they are not three feet high. Why this difference? The former had more rain three or four times during the two winters. In fact, they had what was equal to double the rain of the others, owing to their situation at the foot of a hill. I have 12 acres in English walnuts, all growing very well indeed, yet I shall not know whether walnuts pay in my cañon for eight or ten years. I simply *guess* they will pay. Soil, rainfall, shelter, location, all have a wonderful influence.

Now about the chicken business, which looks so profitable here to you. True, we can raise lots of chickens every month in the year, and *vermin too*. My next neighbor, last year, with 19 hens, raised over 200 chicks with little care. But next month she may have 19 left. One friendly cat (*lynx*) reduced my stock by dozens in a few days. I wake at night and hear the chickens crying "badger!" and see three or four dead in the hen-house. A sportive cayote gobbles up a wilful hen and her chicks from their nest—hid from my eyes. A fat squirrel runs for the egg when he hears a hen cackle, and finds the egg half way down a gopher-snake's neck. We have nearly as many hawks here as chickens, and—we generally have enough eggs to use, and we eat at least half as many chickens as the "varmints" get, so it pays us to keep chickens, though I believe bees pay better.

Now a few words about our California names, which are often very suggestive. The "Chollas" (pronounced Chó-yá) Valley was named from a kind of cactus. Spanish double *l* is pronounced like "y" by our Mexicans.* "Tia Juana," meaning "Aunt Jane," is really a corruption of an Indian name meaning "by the sea." Omitting the saints, more than half those odd names are really Indian, and more than half the Indian names have "water" as a part of the word. Now, why so many saints in California? The early Spaniards were very religious. They have one or more saints for every day in the year. They discovered San Diego on St. James' day, and San Dieguito on the day of the Lesser St. James. If they camped at San Luis Obispo on the day of St. Louis the Bishop, that was the name to give the place. Another day it was St. Luis Rey (the King); another, the day of the Queen of the Angels (Los Angeles); another, San José (St. Joseph). Both Indians and Spanish were extremely unimaginative in most of their namings. Valle de las Viejas (ve-a-has) sounds very poetical, but it is simply "the valley of the old woman;" that is, where an old woman lived. Arroyo Burro is the creek where some one lost his donkey. They get imaginative only when they get scared. Thus, friend Wilkin's bees are at the mouth of Sespe Creek, and the Sespe are devils which they thought lived in those oil-springs and spoiled the water. Further up is a "Devil's Potrero," or pasture-ground. I made California names a special study for some time, so if those who are reading up the State want to inquire about meanings or pronunciations I am "loaded up."

*The Spanish *ll* should be followed by *y*; hence "Chollas" should be pronounced "Choa-l-yas." In Spanish, *ch* is like *ch* in the English word *chair*.

Now about how to plant your orchard (query on page 980). Make an equilateral triangle of straight slats, whose sides equal the distance you want your



trees. Suppose A B, A C, and B C, to be each 20 feet. Drive your pegs at each intersection, holding the triangle level. Then by moving it $\frac{1}{2}$ around you get one new stake, and so on throughout the orchard ground. That divides the whole field into exact equilateral triangles staked out. Now you dig a hole and put your frame against two stakes, and put the tree in the third corner. It will thus come just where the stake was. In that way your trees are in line in every direction, as you can see by matching your equilateral triangles together on a stake, marking the corners with a dot. This is called the quincunx method, though erroneously, since they are not squares with a center tree, but rhombs. That does well where you have all one kind of trees, but walnuts should be 50 feet apart; oranges 30; almonds 25; prunes 20, while some plums, persimmons, etc., are as good 12 or 15 feet. With the variety I have, I am quite satisfied if they range two ways, so I can cross-cultivate. The other does look nice, but it hardly pays with mixed fruits. I was sorry the weather prevented my meeting you in Santa Paula.

C. M. DRAKE.

Springville, Ventura Co., Cal., Jan. 2, 1889.

Friend D., I am exceedingly obliged to you, and your letter makes me feel sorry that I didn't take time to make you a visit. When I take that next trip, you may be sure I shall take in your ranch. I am aware that there are a few localities in California where things do not die, even if irrigation is neglected. I believe I spoke of the corn-fields near Santa Paula; but I supposed the corn was planted before the spring rains were entirely over. In riding along, I was continually asking questions about what kind of trees would live without irrigation, and what would not. Perhaps I have forgotten by this time; but I believe that apricots and walnut-trees in most localities require no irrigation at all, after they are well started. I believe I mentioned that the eucalyptus grows almost anywhere, no matter whether it is wet or dry, if it once gets a little start. The point you make, that "no one knows what will do well on a piece of ground until he tries it," is true with us here in Ohio; but it is more especially true in California. The difference in the changes from mountain to valley, from sand to 'dobe, from one exposure to another, near the seacoast or remote from it, and ever so many other things taken all together, makes the matter of gardening and fruit-raising quite complicated. I believe if I were you I would try one tree of a kind, then gradually increase the number of those that do well; and the same sort of reasoning here will apply to good advantage. The objection with fruit and nut bearing trees is, that it takes so much time; but while the years are passing, we can do it oftentimes as well as not to do it; and if we never live to see the result worked out, our children probably will, and be benefited by

it.—Friend D., with all the advantages you have for the chicken-business, I would make a vermin-proof fence for the fowls, and then I would fight the vermin with traps, poison, clubs, dogs, and cats; and, in fact, our successful men here have to do a good deal of this kind of work.—The matter of California names is one of great interest to me, but it may not be profitable to devote too much space to it.—Great numbers of devices have been sent in to us for planting trees in regular order; but I think your triangle about fills the bill. It is the very thing we used in shaping our hexagonal apiary here at the Home of the Honey-Bees; but for locating the different apiaries, we had an immense triangle. Instead of planting the grapevines in corners, as you have it, we bored a hole through both pieces of board that formed the triangle, and then put in an iron stake. If your iron stake has a ring in it at the top, large enough to slip your hand in, the opening in the ring being made about like the bow in a common door-key, you can force stakes into the ground, and pull them out much more easily. I think I would stretch a line to one side of the orchard, in commencing; then with the aid of the triangle and the iron stakes we can, providing it is on level ground, make the trees come straight, to a dot. The device illustrated in another column will help to get the trees planted exactly where they should stand. I noticed in California many orange-orchards laid out on this plan. Then the harrow was passed through in three different directions, leaving only a little triangular spot around each tree to be fined up with a steel garden-rake. I think I never saw ground worked so handsomely as were many of the California orange-orchards. I fairly ached to get out of the buggy and get hold of a rake, and help do the finishing-up around the trees. Most of the ground was of a kind that does not easily pack, as our ground packs when the horses walk over it. We, however, are often troubled by being obliged to work the ground when it is a little too wet. Where irrigation is practiced, of course this never happens.

NOTES FROM THE KEYSTONE BEE-FARM.

PEDDLING HONEY, ETC.

I MUST tell a little of my experience in peddling honey. I took a load to Wilkes-Barre, just before Christmas. I first offered it to the commission merchants. I found they were well supplied, and were selling basswood honey in one-pound sections at 13 $\frac{1}{2}$ cents by the case. I next called on the leading grocer, Wm. M. Miller. He wanted honey, and I had a first-class article, but he thought it was too cold a day for me to get 16 cents, which was my price. I then concluded to peddle out my load. I supplied nearly all the hotels and some private families. I am acquainted with nearly all the court-house officials and lawyers, and made many good sales among them. I called on my old comrade, Major G. R. Lennard, with whom I served four years during the war. I sold him some fine clover honey at 18 cts., but he

was inquisitive to know whether it was not the *new process* honey, as it was so nice. He said that undoubtedly much of the comb honey on the markets was machine-made. I gave him the address of A. I. Root, and told him that he had a standing offer of \$1000 for a sample of artificial comb honey.

THE LANGSTROTH VERSUS THE AMERICAN FOR WINTERING.

O. O. Poppleton, in the *Dec. Review*, says that it was never claimed that bees would winter better on a shallow than a deep frame. Our bees are on American and Langstroth frames, in chaff hives. We winter on seven frames, and last spring it was a noticeable fact that those on American frames (28 in number) were nearly out of stores, and some had to be fed, while those on the L. frames had clustered in the fall on the ends of the frames next to the entrance, and on May 1st had reached only the middle of the frames, and had nearly half of their stores still on hand.

THE SIMPSON HONEY-PLANT.

The Simpson honey-plant (figwort) is quite plentiful in this section. Last season I cultivated some plants for our bees; but during the whole season not a bee touched it, showing conclusively that location has much to do with the honey-producing qualities of plants.

Our winter thus far has been a favorable one for the bees. Our coldest weather, 16° F., was on Dec. 22, and since that time it has been beautiful Indian summer, the bees flying almost daily.

S. W. TAYLOR.

Harveyville, Luzerne Co., Pa., Jan. 7, 1889.

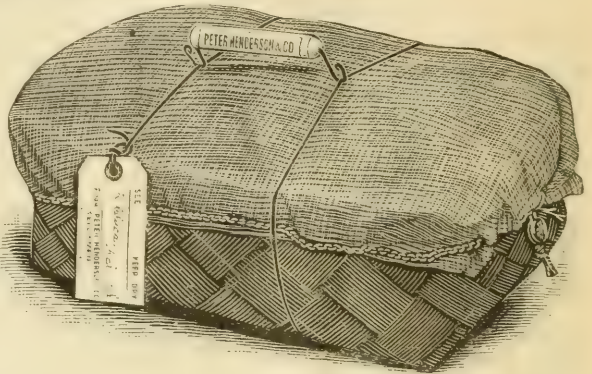
THE SEED CATALOGUES OF THE PRESENT AGE, ETC.

ALSO SOMETHING ABOUT ECONOMIZING EXPRESS CHARGES.

IT is indeed a treat to any one who loves gardening, to look over the beautiful catalogues that are now sent out yearly in the months of January and February. It gives one a glimpse of the progress that is being made, and also of the immense business done in just this little matter of requisites for the garden. When visiting Matthew Crawford last fall, while he was busy with a customer I began to look curiously at some little plats of various kinds of vegetables. They were well cared for; and the wonderful crops in these little patches excited my curiosity. When I asked for an explanation, friend C. spoke something like this:

"Mr. Root, when I get a bright new catalogue that evidently cost the seed-grower quite a little sum of money *apiece*, I have always had a sort of feeling that he deserved at least a little encouragement from every one who received it; therefore I mail a little order for onion seeds to our friend Maule; buy some new wax beans of Burpee; a few packets of Henderson, and so on; and if I get the seeds, of course I must give them a little plat of ground. These great red onions that you are admiring here were

the product of Maule's strain of Wonderful Red; these great white ones are Burpee's Silver King, and so on. I have no particular use for them, growing strawberries mainly, as I do; but it gives me a feeling of pleasure, just as it does you, in this: That these new things are really what they are represented to be, and that they are certainly superior to the common kind we have been selling."



THE NEW SYSTEM OF PACKING.

Now, the above may not have been exactly friend C.'s words, but they are the sum and substance of them, and I do think that every one of you who receives one of these beautiful illustrated catalogues, with their colored plates, ought to send the proprietor at least a small order for seeds, by way of encouragement. If you pay 10 or 25 cts. for the catalogue, you need not make an order unless you choose; but where it is sent you free, I think you can pick out at least a few simple things that will be worth all they cost you, and at the same time prove an encouragement to the one who expends so much money in getting up the catalogue.

But I started out to talk about a new cheap packing for sending seeds, plants, etc., by express. We found it figured in Henderson's new catalogue of the present year. The cut explains it.

You will notice, friends, that it is simply a common market basket, without a handle. Over the top is a piece of oil cloth, hemmed around the edge so as to permit running in a sort of puckering-string, to draw it up securely under the topmost hoop of the basket; and for additional safety, two stout cords are put around the whole, to which is hooked a handle to carry it by. The whole apparatus weighs only a pound, and it will carry a lot of seeds, plants, bulbs, or any thing else, just as safely as a great heavy box that weighs 10 or 15 pounds; and who has not paid a big lot of express charges on a heavy box when the box was not needed at all? Why, hundreds of our patrons send us beeswax in great heavy boxes, when a light cloth bag would answer every purpose in the world. Now, I do not think beeswax should ever be sent by express at all. It may be, however, where you are short of money, and have the wax, and want some foundation by express, you decide to do it; but if so, do not, I beg of you, put it in a box.

Tie it in a stout bag, and we do not care how much it gets pounded up before it reaches us. It is not an uncommon thing for us to receive wax by express when all of the wax would hardly pay the express charges. For some years back we have been much in the habit of using baskets similar to the above, for shipping things by express; and this present season we are going to do it still more. Half-peck baskets we frequently use for sending things by mail. A basket will really stand more banging around than a box; and a great many times it will preserve the contents from injury just as well as or better than a box. The moral to all this is, that, when you have any thing to send by express, be careful not to have the package weigh a single pound more than is absolutely necessary for the safety of the goods.

BEE-KEEPING FOR WOMEN.

BEVELED-EDGE HIVES; TAKING OFF HONEY, ETC.

I HAVE about come to the conclusion that all this moaning and groaning about bee-hives being heavy to lift, and about bee-keeping being too hard work for women, is unnecessary and uncalled for. If all the women who keep bees will manage as Mrs. L. Harrison has always managed, and as I intend to manage from this time forth, they will not find bee-keeping such very hard work.

The next day after I came home from Peoria I went to work to prepare the bees for winter. Last spring I had nine colonies. Now I have twelve. I had seven swarms to come out. Four of them went to the woods, leaving the queen under a goblet on a plate. Two of the four swarmed, and, before I could do any thing, they went back into the hive. The next time, they came out and went off without settling at all. The other two hovered around the barberry bushes awhile, began to cluster, then flew away. I did not want any swarms. I thought there would be no honey, and that they would have to starve. I had a good many old combs and I put them all on the hives, three deep in some places. It was the easiest way to keep the moth out, and I thought now was the time to prove whether giving plenty of room would prevent swarming. I am now convinced that nothing will prevent swarming. If bees want to swarm, they will swarm. It does not depend on a honey-flow. Some of those colonies had not three days' rations ahead. It does not depend on any thing—they just swarm.

Well, they went on in a hand-to-mouth way till toward the last of July; then the rains came, and the oats rotted in the field—three hundred dollars' worth. We never thrashed a straw. (This is the price that I am obliged to pay for my 300 lbs. of honey. Let me see: that makes my honey worth about a dollar a pound, does it not?) The smart-weed began to bloom, and the bees began to roar. They filled all those old combs, and the honey-boxes; and when I went out there to take that honey off, I found I could not budge it. I had a chisel and a hatchet, and I pounded and pried here and there, but could not move it an inch. You see, all that time while there was no honey to gather, the bees had put in their spare moments plastering those hives together with propolis. I worked till I

was hot and tired, then I thought, "What is the use to be a married woman, if I have to work just like a widow?" and so I went to where Mr. Chaddock



"I POUNDED AND PRIED."

was unloading apples and carrying them into the cellar, and told him that I must have help. He



"MUST HAVE HELP."

donned a bee-hat, and worked the chisel and hatchet while I stood by and worked the smoker and



"HE WORKED THE HATCHET AND I GAVE ADVICE." gave advice. After he had worked awhile at one, and torn off a side, he began giving his opinion of a man that would invent such a bee-hive as that.

But I stopped him, by telling him that that was the bee-hive that Mr. Root invented on purpose for ladies, invalids, and preachers to keep bees in, because it was so light and handy.



GIVING HIS OPINION.

Well, he pried all that honey loose; took it off and carried it into the house. After he had finished I asked him how much honey he thought he had carried in. He answered instantly. "A thousand pounds."

"Oh, no!" I said; "tell in earnest, so I can write it down."

"Well," said he, "put it four hundred. I know there is that much."

As most of the combs were old ones, I shall say three hundred pounds of honey.

This letter is long enough; but I want to tell how to get bees out of honey-boxes—how to keep moths out of old combs, and something about division-boards, etc. I will end this as I began, by saying that bee-keeping is not very hard work, and every woman might as well keep bees as not.

Vermont, Ill.

MAHALA B. CHADDOCK.

Mrs. Chaddock, you are very graphic, but your illustrations bear rather hard on the Simplicity hive. Please say to your good husband, Mr. C., that the Simplicity hive was never intended to be used in the way you describe; that is, we do not intend to have the propolis get into that beveled joint, as it must have done in your case, to make it stick together. When I decided to tier up the hives in order to get the whole product of the season, in stories three or four high, so as to extract all at once, I took particular pains not to let the propolis run down across the bevel, where the hives come together, when placing them one on top of the other; but when the bees put so much along the crack that it was likely to get in the joint, I scraped it out with a putty-knife. In some cases I rubbed tallow along the upper edge. This entirely obviates all the difficulty you experienced. When I find hives where the propolis has been allowed to get down the joints so as to glue them fast, I always choose a day to separate them when the hives or the weather is so warm that the propolis will be in a soft state. If this propolis is allowed to accumulate, and get into the joints, it will make every operation with a bee-hive dauby and disagreeable.

WINTERING BEES.

BEE DIARRHEA THE ONE GREAT CAUSE OF OUR WINTER LOSSES; FRIEND HEDDON EXPLAINS.

YES, friend Root, I can answer for myself, and shall be pleased to do so. I rather like the style of our crisp friend Hamilton (see page 9, Jan. 1st). I will say, for the benefit of Mr.

Hamilton and your readers (if what I have to say will benefit them), that, by a belief in the pollen theory, and manipulation accordingly, I mean I can winter any colony of bees with greater certainty of success, and keep that identical colony (not the identical bees, however) in existence longer than any one can keep a horse or a cow. At our late State convention at Jackson, an overwhelming majority of the members present, and, in fact, I think every one of the older and larger bee-keepers, believed the pollen theory to be correct. I am aware that bees will winter very well in a hive containing much bee-bread, provided they do not eat it, and I know some of the conditions which cause them to eat it or let it alone, but I do not know all of them, but am learning more each year. A low temperature is the greatest of all causes of consumption of bee-bread in confinement. Of course, if it is not in the hive they can not eat it; but, at the same time, the bees can be damaged by too low a temperature, and killed outright by it if it is allowed to go low enough and long enough. Any one who will take a colony of bees, and see to it that they have no pollen in their bodies at the time, and can not get any after the time, and who will take away all their combs and feed them properly prepared sugar syrup in dry, clean combs, and who likewise will place them in a repository, keep the temperature between 45 and 50 degrees, can leave them so six months or more—I do not know how much more; and when he takes them out the bees will be as bright, slim, and healthy, apparently, as when they went in. They will not void a speck of any thing on their first flight.

But now I imagine I hear friend Hamilton ask how my bees have wintered in the past few winters, and why some of them died with bee diarrhea. I will tell him. If honey were worth a cent a pound, and bees about forty cents a colony, would it not be better to take lots of chances and let them die if they will, rather than to go to the trouble of feeding them a cash article, taking from them an article in place of it which has a very slow and uncertain sale indeed? I trust you see the point. Even at the present price of bees and honey, if the best methods of wintering are used I prefer to take my chances rather than extracting honey from the combs and feeding back sugar syrup, or, rather, exchanging combs so as to get rid of all pollen. You know it is a job demanding much labor, and endangering robbing. It is a disagreeable time to work among bees; but with my new hive, however, I can do the work without being annoyed with robbers, and in less than one-fourth the time and one-eighth the labor; and the consequence is, we have almost perfect success with the new hive. We take a little risk; but we could quite readily, and with little increased labor and no increased expense, fix things perfectly safe and sure for wintering. Without occupying valuable space, you will see just how this can be readily accomplished,

providing the pollen theory is correct, as myself and others well know it to be. Hoping I have shed some light which will be received by Bro. Hamilton, I will leave further notes for future articles.

JAMES HEDDON.

Dowagiac, Mich., Jan. 10, 1889.

Friend H., I am not so sure about the pollen, but I am sure that there is a great deal of sound sense in your concluding paragraph. Even if we could save a colony of bees by removing the pollen, or, if you choose, by taking them into the greenhouse and giving them a fly in the middle of the winter, so long as bees can be purchased in the spring as cheaply as they are now offered it would be cheaper to take the chances, as you say. Of course, every prudent bee-keeper will see that his bees have enough to keep them from starving. But while it is by no means certain that the honey they have is going to prove disastrous, I would not throw it out and give them sugar syrup instead. Neither would I fuss to get all the pollen out of their hive, when it is by no means certain that they will not winter very well just as they are.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SECTIONS BULGING; HIVES BY FOOT POWER VERSUS FACTORY-MADE HIVES.

WILL putting on a whole crate, or from seven to eight wide frames, prevent bulging? or is the only expedient separators?

Which is cheaper—to buy my hives, paying \$1.20 for chaff in flat, 75 cts. for Simplicity, or to buy a Barnes foot-power?

Penrose, Ill., Jan. 3, 1889.

B. F. HOOVER.

Putting on a whole crate of empty sections without separators will discourage, although it will not prevent the bees from bulging the combs. When separators are not used, bulging is caused principally by taking out the completed sections and putting empty ones in their places. The bees are then inclined to bulge those partially filled into the spaces occupied by the empty sections. Separators are the only sure expedient; and while you can dispense with them, most bee-keepers prefer to use them.

It is a little hard to answer your second question, as so much depends upon freight rates, the price you would have to pay for lumber in your locality, and the requisite skill you may have. Generally speaking it is cheaper to buy the hives, if your freight rates are reasonable. The principal expense in a hive is the lumber. The cost of making has been reduced to such a low point it would be a very difficult matter indeed for an inexperienced person with a foot-power buzz-saw, even if his time were not worth much, to make any thing. Where one persists in using odd-sized hives, a Barnes saw, without doubt, would save money. In regard to a foot-power buzz-saw, let us say that it takes lots of hard work; and if one is not used to manual labor he will find himself considerably the worse for wear after running one of these

machines. If you are a good mechanic, and can buy surfaced lumber for less than 3 cts. per square foot if your freight rates are high, and if, too, you are used to manual labor, it would pay you, probably, to buy a Barnes saw and make your hives, providing you have odd spells which you can not devote profitably otherwise. Where hive-making is made a specialty, certain fixed gauges are employed; hence, accuracy and nicety of work is almost the inevitable result.

NAPOLEON, AND HIS MORAL CHARACTER.

I can not allow your remarks, p. 854, regarding Napoleon, to pass unnoticed. The sentiments attributed to him did not influence his life; and if we look at his actions, where can a greater monster be found? I was born, and lived in the earlier part of my life, in the part of England where it was supposed, if he paid us a hostile visit, he would land, and opposite to which he had actually prepared a flat-bottomed flotilla for the purpose of crossing. As to his cruelty, I will give but three instances. First, his directions on the birth of his child, that, if it was necessary to sacrifice either, it was to be the mother. Second, when his sick had become so numerous in Egypt as to become troublesome, his direction to the doctors to poison them. Third, in his retreat from Moscow, after crossing a bridge himself, directing it to be destroyed, regardless of the consequences to his followers. For the sake of my country, I have always regretted that he did not fall into the hands of the Russians. I can not doubt that they would have made short work with him. It was no doubt wrong; but on standing on his grave in the island of St. Helena I felt some satisfaction in knowing the enemy of Europe was under my feet.

W. P. TAYLOR.

Fitzroy Harbor, Ont., Can., Dec. 21, 1888.

Friend T., I am much obliged to you for the facts you give us. I did not intend to convey the idea that Napoleon was himself any thing remotely approaching a follower of Christ; but I am pleased to know that he recognized the true character and mission of Christ Jesus. The Bible tells us that even "the devils believe, and tremble;" but I fear that Napoleon believed without trembling, from the report you give of him.

REPORT OF THE SEASON; THE VALUE OF UNFINISHED SECTIONS.

The past season was here a poor one. My winter losses were heavy, saving only 34 out of 85 colonies in the fall, and 8 of the 34 were very weak. I increased to 53, and took only 650 pounds of honey—550 of extracted, and 100 comb. The latter was secured in trying an experiment to know whether

IT PAYS TO SAVE UNFINISHED SECTIONS OF COMBS.

I selected three colonies of as equal strength and condition as my judgment dictated, and placed on one hive sections of empty combs in crates left over from the previous year. On another hive I placed sections filled with foundation in crates. On the last hive I placed sections with foundation starters only, also in crates, adopting the tiering-up plan. Now for the result: From the hive with the unfinished sections, I took 56 sections weighing 63 pounds, and took the first premium at our county fair, on case of 12 best-filled sections of honey

(with three competitors). From the hive with sections filled with foundation I took 24 pounds, a part of which were poorly filled. From the hive with starters only, I took 13 lbs. I used the $4\frac{3}{4} \times 4\frac{3}{4} \times 1\frac{1}{2}$ section. A season with a good flow of nectar, the result might have been different.

Thanks for the biographies of our leading bee-keepers. ELIAS COLE.

Ashley, O., Jan. 10, 1889.

Friend C., your report is very valuable, but I am sorry to say that you omitted in your experiments one of the most valuable, or, perhaps I might say, *vital* points. No one claims, I believe, that the bees will fill a case sooner when *entirely* supplied with new sections containing foundation. Every crate of this kind should have one or two sections, with comb partly built out, to induce the bees to make a starting. Now, had you prepared the case in this way, my opinion is that it would have given more honey than the one where the crate was made up entirely of partly finished sections from the previous year. Will somebody else please give us reports in regard to this matter, especially tests made as I have stated it?

MATING OF THE QUEEN AND DRONE ON THE WING. AS SEEN BY AN EYE-WITNESS.

I have your A B C book before me, open at page 72—"Mating of the Queens and Drones." On June 21, 1888, I saw this mating take place. The queen issued from the hive, took two circles, and came within five feet of my face, and was there met by a drone. They seemed to face each other, clinging by their fore legs, their bodies being perpendicular, and in this shape flew from my sight. It happened so unexpectedly that I hardly knew what was going on before it was too late to follow them. I could have easily kept up with them. I have described this because your book says they have not been seen, only as they were whirling about each other. I saw these fasten; and as they did so they turned and came together, square up and down; and as they flew away their bodies inclined about like this /, and each bee was using its wings. I now would ask you bee-men of experience if you would call this a mating. Have any had the opportunity of seeing the same?

Myrtle, Pa., Jan. 2, 1889.

E. A. PRATT.

Friend P., we have had accounts already, similar to yours, but I believe that, in most cases, they speak of insects whirling one about another, which you do not mention. The point yet undecided, if I am correct, is, to witness the whole operation until the queen releases herself and leaves the drone to drop to the ground dead, or, if both fall to the ground, the separation of the queen and going back to the hive. The meeting has been described at least several times, much as you describe it; and by standing at the hive, the queen has been seen to come home with the usual appendage attached to her, so that we know pretty nearly all about it. It is quite likely that they do not behave, at all times and under all circumstances, exactly in the same way. At the time when so many were experimenting, with the view of being able to bring about this meeting by artificial means, the subject assumed the shape of a good deal of practi-

cal interest; but since the matter of artificial fertilization has been mostly dropped as impracticable, by universal consent, there is also less inquiry in regard to it.

DR. MILLER'S BEE-ESCAPE; TAKING OFF FALL HONEY.

As soon as we read of Dr. Miller's miniature tents we made three; but we did not find their use necessary for fall. One morning when we found the bees all out of the supers and down on the brood-combs we took off the supers. Altogether there were four of us—two to open and take off supers, one to carry in the supers, and one to put on a quilt and the hive-cover. We ran through them so quickly that we needed no smoke, and we had the hive covered before they woke up. In that way we went through the whole apiary very quickly.

Roseville, Ill.

MRS. L. C. AXTELL.

Mrs. A., you do not explain enough. Do you mean that the cool frosty weather drove the bees down out of the supers, and that you took advantage of this state of affairs, and got the honey off without any need of driving the bees out of the sections? I have sometimes succeeded in doing this; but the snapping of the supers when they come off will ordinarily start the bees out unless we work very rapidly. As the engraving came in the issue for Sept. 15, it was probably October before you got to taking the honey off.

OUT FOR A FLY; SOME STATEMENTS REVIEWED.

I am out for a fly, and intend alighting wherever I can get anything to pick at. I think Dr. Mason deserves the first "dab." About a year ago he promised he would keep a paternal eye on the bee-journals and bring up sharply all and sundry who deviated from the true line. Either bee-literature has been exceedingly straight from then till now, or he has gone woefully back on his promise. I have not noticed a single instance in which he has brought the erring to task in the meantime. He can hardly plead that every thing which has appeared since can be brought to the plummet and prove truly laid. Surely the doctor's promises are not like pie-crusts—made to be broken?

I should like to gently tickle the ear of Mr. Doolittle with a feather from my wing, if it would correct his mistaken notion of the honey-producing qualities of the hard maple. He says: "We are told nearly every year of bees getting honey from hard maple.*** I have come to the conclusion there was a mistake somewhere." Without doubt the mistake lies with Mr. Doolittle and those who think with him; for a very considerable quantity of honey was gotten from this source in this section during the early part of this season. A neighbor of mine took several hundred pounds of hard-maple honey. Of the source from which it was gathered, there can be no doubt. I suppose nothing short of proof will convince the gentleman of this fact. Fortunately, I am in a position to supply the proof by sending you a sample of the honey, which you may, if you please, transmit to your doubting correspondent. If the *soft* maple flourished to any extent here, it might be said it was from it the honey was gathered; but it does not.

I think I had better now alight on the shoulder of Dr. C. C. Miller, as I see him and his companion bearing toward the cellar-door a well-stored hive,

suspended in his new hive-sling. The doctor is a public-spirited man. He does not hide his light under a bushel, but freely bestows upon his brethren the products of an ingenious mind. "Virtue is its own reward," so is generosity. If the doctor were less generous in imparting to others the fruits of his own researches he would not have the gratification of seeing himself in a wood-cut simply because he has discovered that a rope is a good thing to carry hives to the cellar. I refrain from picking at the rope, out of consideration for the safety of the doctor's toes. R. MCKNIGHT.

Owen Sound, Ont., Can.

NEW ZEALAND, AND THE EARLY SEASON; THE SWARMING-NOTE.

The swarming season commenced in this locality at least three weeks earlier than usual, and the bees were doing well; but for the last two weeks the weather has been terrible—raining, hailing, and blowing a gale every day, and as cold as we have had it through the winter. There is plenty of white clover now, and if the weather holds good I think honey will be plentiful. I grew a good piece of figwort in my orchard, also mignonette, and the bees do well on them every year. On account of late frosts, and the difficulty in getting the seed to grow, the spider plant does not do well every season. I am starting an apiary about five miles from home. It is in a splendid locality, and I hope to get a good yield from them this season.

Masterton, N. Z., Nov. 25, 1888. THOMAS DIXON.

RAISING THE TEMPERATURE IN CELLARS.

In reading your questions and answers in GLEANINGS of Jan. 1st, in regard to ventilation of cellars, a thought struck me that probably would benefit some of the many readers of GLEANINGS. The use of a lamp or a lantern would dispense with the use of stoves in bee-cellars. If you place a lantern in a comparatively closed cellar, free from drafts, you will be surprised to see how rapidly you will gain one or two degrees of temperature; and if you have a room in your house which is subject to dampness, try placing a burning lamp in it in the morning. By bedtime you will have a room fit for any one to sleep in. If any of these suggestions are of any value to the readers, it is returning a kindness, for I am very thankful for the many I have received. The biographical sketches of prominent bee-men was quite a Christmas present. I am reading the editor's Notes by the Way, with delight. PERRY FOCHT.

Uniopolis, O., Jan. 4, 1889.

KEEPING DOWN THE TEMPERATURE IN A WINTER REPOSITORY; IS LIGHT DELETERIOUS OR NOT?

I constructed a small house last fall to winter my bees in. The house is 8½ by 12 inside; the walls contain one foot of sawdust. I placed 42 colonies in it. It proves to be too warm, and the only way I can keep the temperature down is by leaving the door open a little. By so doing I can keep it at 40° about all the time. Now, I wish your opinion as to how much harm will result from the light while the temperature is kept at that point.

Brownstown, Wis., Jan. 14, 1889. H. LATHROP.

Friend L., light is generally considered to be deleterious to the best welfare of colonies in winter repositories, though a very little may do no harm. In your case the question hinges on how much light is admitted into the repository by opening the door a "lit-

tle." You are better able to answer that question for yourself. If, after examination of the colonies, they appear to be doing nicely, and are clean and sweet, then the admission of a little light by opening a door a trifle would do no harm. We would refer you to the Dec. 15th issue of GLEANINGS, in the Question-Box department, for particulars in regard to light in cellars or other repositories.

In addition to what Ernest has written above, permit me to say I do not think it will do any harm in a bee-house or cellar, so long as you keep the temperature down to 40°; but in our locality it would be impossible to do this. This 23d day of January, the thermometer is up nearly to 60°, although the day is cloudy. When this temperature continues for a couple of days or more, we have found it very difficult and even impossible to keep bees quiet in a winter repository, even when kept in darkness.

TURKEY BUZZARDS, CUT-WORMS, AND BEE-VEILS.

I do so appreciate the photographs of Professor Cook and father Langstroth, that the price of GLEANINGS would in no way be sufficient to purchase them. By the way, we have a professor A. J. Cook, of Alabama, and one of the best men I ever knew; and I am bound to think he must be a relative of your A. J. Cook.

You don't know how much I enjoy your description of your journey to California. I was really amused at your scare-crows. What queer notions a Yankee has of things at the South!

In the 15th of June GLEANINGS, page 481, D. W. C. Mathews asks for a preventive of cut-worms. Tell him that, in the spring of the year, when he first commences to break up his ground to sow for a small garden, say ¼ of an acre, a peck of common salt spread evenly over the surface of the ground, and plowed in, is good. For an acre, one bushel of salt is the proportion. If this is done soon enough it will prevent the cut-worms from breeding, and consequently you will not be bothered that year. If you keep it up every spring you will finally forget there ever was any such pest, and you will also get rid of the little ground-flea. I know these things from experience.

Can I not change metal-cornered frames to reversible by getting some of your wire attachments?

Can you make me a bee-hat with rim of galvanized wire? My bee-hat is so pleasant to the head I will wear it all the time; and when it gets wet from a shower it rusts through the cloth. I also want a longer veil, with one-half silk brussels net and the other grenadine at least six inches longer. I am a very tall man, with a long neck. I am six feet five inches. My neighbors say I am just such a looking man as E. France. J. T. McCracken.

Rowell, Ala.

Friend M., it may not be profitable to use salt in the quantity you mention, on our corn ground, unless, indeed, the salt would have some other beneficial effect in keeping away the cut-worms; but in market-gardening it would no doubt be worth all its costs, and more too, where cut-worms are as troublesome as they are at times. Some recent reports in the agricultural papers seem to indicate that strong doses of common salt on some soils have a very marked

and decided benefit; but on other soils the salt seems to do no good whatever. We should be glad to have Prof. Cook tell us if he has heard of salt as a remedy.—To be sure, you can cut off the arms of your metal corners, and put on reversing wires. In fact, they were devised specially for this very purpose; or they are to be used on any hanging frame after cutting off the projection on which the frame hangs.—We can easily make a bee-hat with a rim of galvanized wire, but we hardly think the advantage of sufficient importance to warrant the extra expense. As the cloth will become sweat-soiled in a season's use there would in reality be no advantage.

A GOOD QUESTION; PUMPING WATER IN THE CELLAR TO KEEP THE BEES QUIET.

Does pumping fresh water occasionally in cellars keep bees quiet? Last winter I had some small carp in a barrel. I pumped a barrel of fresh water every week in the cellar, and the bees kept quiet. When I took the fish out I stopped pumping, and then the bees got restless. I then commenced pumping water in again, and they kept more quiet. Now, who can answer? Did the water purify the air, or did I only think so? My cellar is cemented on the bottom, and has tile to let the water out, and gas-pipe laid from the pump, so there is no carrying of water.

My bees did tolerably well through the fall. It was quite late when I got time to extract my honey, so that I had to put a stove in my honey-house to warm the combs before I commenced working with the bees. I shut the entrance *just so one or two* bees could pass out at a time at all the hives. Then I took all the honey away from the bees and set it in hives in the honey-house. I extracted it, and hung the combs in empty hives in the apiary, for the bees to clean up. There was only one hive that they commenced to rob at which I had neglected to close the entrance. The combs were all cleaned up nicely.

I got 1300 lbs. of honey from my bees this fall, all extracted. White clover yielded just enough to keep the bees going till the fall flow.

GEORGE J. KLEIN.

Conrad Grove, Ia., Dec. 14, 1888.

Friend K., if your cellar is remarkably dry, it may be that the moisture supplied to the atmosphere by pumping the water had the effect of keeping the bees quiet. A spring or running stream through the cellar has been many times considered a decided advantage.

BASSWOOD PLANK; DISCOLORATION OF, AND WHY.

Have you had any experience in drying basswood plank for sections, in a dry-kiln? If so, does the drying process color the basswood? How many thousand sections does one of your section-sawyers saw per day, and what wages do you pay them? I am paying 40 cents per thousand for sawing them, and think it is too much. J. M. KENZIE.

Rochester, Mich., Jan. 7, 1889.

Friend K., we have dried a great many thousand feet of basswood lumber in a dry-kiln heated by steam, and we have never experienced any trouble from discoloration as a result of such drying. Stained basswood lumber is generally caused by the timber being cut in the summer time; or even

if cut in the winter it will color if piled carelessly. Basswood timber should be cut in the winter, and, when piled up properly, will cut nice white basswood plank. Our sawyers cut about 500 sections per hour—that is, they rip the bolts into strips. We pay from \$1.25 to \$1.50 per day; and if you can get them cut for 40 cts. per thousand, and not have a good many spoiled by hurrying, you are getting the work done pretty reasonable.

A RETURNING QUEEN.

In hiving a swarm the past summer, the bees kept clustering on the hive, but would not stay in. After considerable search I found the queen under the projecting cover. I caught her as carefully as I could with my hand, removed the cover, put her on the frames, but in shutting the cover carefully she escaped. It looked as if a small hummingbird darted away, apparently back to the old hive. I hastened there, but could not see her enter, so I concluded to put the bees back. In doing so I detected the queen again on the top of the cover, surrounded by bees. I succeeded in putting her in the new hive, when the bees soon followed. It was something new to me, a queen leaving her bees and returning to the new hive, rods away from the old one.

F. J. M. OTTO.

Sandusky, O.

Friend O., it is true that a queen on the wing looks something like a small hummingbird, and especially to an enthusiastic novice whose eyes are apt to magnify every thing pertaining to a queen. But for all that, I am inclined to think that your queen did not go back to the parent hive at all. Never try putting a queen into the top of a hive, especially where you have to put the cover on the hive afterward. Put her down at the entrance, as she will be much more likely to go in. If you can start some of the bees to traveling in before you set her down, she will be almost sure to run in with them.

THE LAST ECLIPSE, AND WHAT EFFECT IT HAD ON BEES IN SAN JACINTO, CAL.

I suppose you all know that there was an eclipse of the sun the first of January; but I don't think you know what effect it had on *bees* in its path—at least not all of you. The day was a pleasant one here, it being clear and warm until the eclipse came over the sun, when the mercury went down from about 75 to 45 degrees; and the "manzanita" being in full bloom, my bees were bringing in honey and pollen by the wholesale; but the sudden change chilled thousands of the poor little laborers so that they were not able to get to their homes. Many dropped within a few inches of their hives and perished there, loaded with honey and pollen. I believe it would be a good plan for every bee-man to be ready for the next eclipse of the sun, and close all his hives early in the morning of such day, and, by so doing, save thousands of very valuable creatures from so sudden and unexpected an end of existence when life to them is so sweet.

San Jacinto, Cal., Jan. 7, 1889.

D. W. ROWSE.

Friend R., I think you exaggerate the damage done by the eclipse. From what I remember of the way the sun goes down in California, I can readily imagine how dark and chilly it became in a short time; but, if

I am not very much mistaken, the bees scattered around on the ground and trees would, a great part of them, revive the next day under the influence of the sunshine, and go back home to their hives. I have often seen pollen-laden bees go out so late as to be obliged to roost on fences or side-walks over night; but these same bees, when the sun strikes them in the morning, rub their eyes and stretch their legs and wings, and finally go home, none the worse for camping out, unless it be the tooth-ache, rheumatism, or something of that sort, later on.

TREATING FOUL BROOD; REASONS FOR FAILURE.

Some time last winter I wrote to you about the trouble I had with foul brood in my bees. I followed your kind advice as regards treatment, and not only put them in clean new hives, foundation, etc., but moved them three miles in the country to my present place. I found the treatment cured the Italian stocks, but not the hybrids. Some of these were brushed off their combs of brood on to foundation, and given clean hives three times. I had no cellar to starve them in, and found it a trouble to get them to take medicated syrup, the season being well advanced, and some honey being gathered. So I expect to see the enemy again next season. I requeneed the hybrid stocks the last time they were brushed off, and, having no brood to feed, they filled up for winter on buckwheat honey. I think it's the nervous nature of the hybrids when they are disturbed, causing them to gorge themselves to the utmost with the infected honey, that makes it difficult to cure them; however, I hope to see the last of the trouble next season, and hope to have a better crop.

E. ROBINSON.

Glendale, Westminster, Ont., Jan. 3, 1889.

Friend R., we can assign no cause for failure in our method of curing foul brood in your case, unless it be that you did not *compel* the bees to convert the honey they might have in their sacs into comb. Every drop of affected honey must be gotten out of their honey-sacs, either by starvation or by building comb, otherwise the treatment will be a failure. If there had been considerable natural stores, it would have been well to close the hive at night, after putting the bees in a clean hive, and kept closed for a couple of days. We had no trouble at all in curing when we starved the bees or caused them to build comb. If you had starved your hybrids, or made them build considerable comb, all would have been well.

TO TAKE PROPOLIS OFF A PAINTED FLOOR.

Take an old whisk or brush broom and a cup of boiling water, and hold the cup of water in one hand and pour on spots, and with the whisk broom scrub the spots. If only a little is on the floor, I use an old teaspoon to scrape it up, as a knife (unless very dull) is apt to scrape off the paint, and sometimes roughen up the wood, if pine. In our honey-house, which has a hard-wood floor, unpainted, I use the scraper that I scrape the bottoms of hives, first wetting the floor with cold water, if it is not convenient to have boiling water.

Roseville, Ill., Jan. 1, 1889. MRS. L. C. AXTELL.

REPORTS ENCOURAGING.

FROM 90 TO 140, AND 6000 LBS. OF HONEY.

MY report for last year is as follows: From 90 to 140, and about 6000 lbs. of honey—4000 lbs. comb, and 2000 lbs. of extracted. I moved my bees in April over 200 miles, and got them through all safe. It was a very hard spring on bees. I had about 80 fair colonies, and 10 of them were nuclei. These were used for rearing queens. White clover was fair, and the bees built up in good condition for the basswood-honey flow, which was good for about two weeks. My bees are all in the cellar, except two which are packed on their summer stands. I have 138 full colonies in the cellar, and 7 nuclei. The cellar is 11x13, and about 7 feet high. The bees all have a good woolen blanket on top of the frames, and a 6-inch entrance to the hive. The temperature has been from 45 to 50° all winter. The bees seem to be doing well. We are having a big snowstorm to-day, and I expect it will be cold now. White clover looks very well now. I am looking for a good honey crop this year.

N. STAININGER.

Tipton, Iowa, Jan. 9, 1889.

OVER 700 LBS. FROM ONE COLONY AND ITS INCREASE.

I extracted over 700 lbs. of well-ripened honey from one colony and its increase, and they had abundant to winter on. Who can come up to it?

Orion, Wis., Jan. 10, 1889.

F. L. SNYDER.

1100 POUNDS FROM 13 COLONIES.

I commenced the season with 15 hives of bees. I used two swarms for raising queens. With the other 13 I got 1100 well-filled one-pound sections, and increased to 52. They are in the cellar, and wintering well so far. My honey is all sold by peddling. I liked selling it, first rate.

JOHN RAGAN.

Waukon, Iowa, Jan. 10, 1889.

FROM 19 TO 40, AND 2000 LBS. OF HONEY.

I commenced the season with 19 colonies of bees (very weak), and increased to 40; took off about 2000 lbs. of honey. About all was sold at 10 cts. per lb. for extracted, and 15 for comb. I have no trouble to sell my honey. Where I sell one year I can always sell the next. My bees are all in good shape to winter. So far we have had a very open winter.

Bucklin, Mo., Jan. 9, 1889.

J. W. SWITZER.

FROM 80 TO 100, AND 4200 LBS. OF HONEY.

I commenced the season with 80 colonies, mostly strong. I had 20 natural swarms, making a total of 100. They were all very strong when I put them into winter quarters, with plenty of honey for winter stores. Surplus honey taken from them this season in 1-lb. sections, 600 pounds; extracted, 3600 pounds. How will that do for such a poor season as we have passed through?

HONEY FROM BUCKWHEAT.

I had a fair yield from buckwheat. I got 1300 pounds of surplus. I had one colony standing on scales, and it gained 25 lbs. in four days, and 11 lbs. in one day.

I had $\frac{3}{4}$ of an acre of Japanese buckwheat. It yielded well, both grain and honey. There was other buckwheat in the neighborhood. So you see if the weather is favorable it will yield honey with

us. Even if it is not very good, it is honey this year. It is worth ten dollars a hundred more than we can get for clover or basswood other years. From one peck of Japanese buckwheat I thrashed 18 bushels of good clean seed. D. ANGUISH.

Brantford, Ont., Jan. 11, 1889.

FROM 20 FAIR TO 42 STRONG, AND 2500 LBS. OF HONEY.

I produced 2500 pounds of honey this season from 20 hives in the spring, mostly weak. I closed the season with 42 strong colonies. I had single stands that made me 225 pounds of comb honey in pound sections. Considering the season, I thought my yield was worthy of a report. H. LATHROP.

Browntown, Wis., Jan. 9, 1889.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 103.—*What do you consider to be the best covering for frames in winter, regardless of a few cents' difference in expense—woolen ingrain carpet, muslin, linen, duck, enamel cloth, or burlap?*

Woolen or straw, most assuredly.

CHAS. F. MUTH.

The cover of the hive—nothing more.

H. R. BOARDMAN.

I do not think it makes much difference, if the bees are properly prepared for winter.

A. J. COOK.

We use a straw mat; but of all you mention, we would use woolen carpet.

DADANT & SON.

The enamel cloth is what I use, because I find the bees eat it less than any other material.

P. L. VIALLO.

I use burlap, the same as is on in summer. I leave it as the bees fix it in summer. I would use enamel cloth if I had it.

DR. A. B. MASON.

Light woolen first; burlap second; muslin third. I have no use for linen, duck, or enamel cloth, for a winter covering.

MRS. L. HARRISON.

First I use a sheet of duck or common factory cloth over the frames, then over this I use a cushion from 3 to 4 inches thick, made of factory cloth filled with dry basswood sawdust.

G. M. DOOLITTLE.

I use neither, but leave on the honey-board. This gives the bees about $\frac{3}{8}$ inch space over the frames; and the honey-board, being slid forward about $\frac{1}{4}$ inch, gives all the upward ventilation I want them to have.

GEO. GRIMM.

I suppose this question refers to covering for open-top frames; and if so, I can not answer it. I consider a good chaff cushion the best covering I know of for any kind of frames, not only during winter but summer as well.

O. O. POPPLETON.

For indoor wintering I prefer enamel cloth with any kind of a mat over it. For outdoors I would use enamel cloth with a heavy cloth or mat over; and over and around all, four to six inches of loose packing of leaves, chaff, cut hay, or straw.

L. C. ROOT.

I use enamel all the year round, whenever supers are not on. I am not positive it is the best thing; but it seems to me that a contracted chamber, tight on the top and all sides, gives them power to ventilate by the entrance, when they wish to do so, better than when their covering is porous.

E. E. HASTY.

That depends upon the hive somewhat. It doesn't make so much difference if you have a board over it. If you depend upon these alone for upward ventilation, then neither is warm enough. I think I would as soon have a board well glued down as any thing. Our hives are so constructed that we have to use something else, so use a burlap quilt filled with cotton.

P. H. ELWOOD.

Enamel cloth with woolen carpet over it. But I don't use that, and I like mine well—a single thickness of muslin (sheeting) well glued by the bees, and over it a quilt made of sheeting with several thicknesses of newspaper in it. Perhaps it would be just as well to have a single thickness of sheeting and another hive fitting closely over it.

C. C. MILLER.

It makes no difference. A board cover I have found just as good as any thing. You were straining at a gnat and swallowing a camel. Bee diarrhea is what sweeps away our stock, and you can not prevent it in the least by the use of woolen ingrain carpets, muslin, linen, duck, enamel cloth, or burlap. If there is no nitrogen in the food they are to consume during confinement, then you will be all right with any of these covers or none of them.

JAMES HEDDON.

I prefer enameled cloth. I want the top of my hives as closely sealed and as nearly airtight as possible. Many of my hives have board covers, and I like to have the bees seal them down tight as long as possible before winter.

I am more firmly persuaded than ever, that, with proper protection, no upward ventilation whatever should be permitted. I have wintered bees in tin cans (as near as I could conveniently get to the glass bottles we talked of a couple of years ago), with good results and no loss.

JAMES A. GREEN.

I am glad to see, friends, a disposition to decide that it does not matter so very much what the covering is, providing all the circumstances are as they should be. Now, an enamel cloth waxed down tight will do very well, providing you have a chaff cushion, or its equivalent, on the top of the enamel cloth. If you have simply an upper story over it, so the frost can get in and reduce the temperature of the upper side of the enamel cloth, it will act exactly like a pane of glass on your windows in the winter time; namely, the under side will be covered with dampness, or may be a thick coating of frost; whereas, were the frost kept away by means of a good chaff cushion on the upper side there would not even be any dampness on the side toward the bees. Put a chaff cushion or pillow tight against one of the panes on your window, on a cold frosty night, and you can see it for yourself. There will be no frost on the outer side, while all the rest of the panes will have a thick coating of ice. The other condition is, as has been mentioned, that there be venti-

lation enough below, either through a hole made in the bottom of the hive, or by having a good-sized entrance. If the entrance gets clogged, or is small, a sheet of burlap over the bees might save them, when they would die with the enamel cloth.

QUESTION 104.—How and in what way can a bee-keeper best employ his leisure hours in the winter months, to advantage?

Prepare for next season's work. GEO. GRIMM.

Making hives, selling honey, and reading.

DADANT & SON.

Making preparations for the next season, and writing for the bee-journals. H. R. BOARDMAN.

Feeding his chickens, tending the baby, and making himself generally useful. MRS. L. HARRISON.

There are many ways to do good during the winter months, too numerous to mention.

CHAS. F. MUTH.

This can hardly be answered. He can arrange for the coming season; can market his honey at retail, often at a good paying remuneration. It depends much on his tastes and adaptability. A. J. COOK.

Reading and studying the theory of his business, and doing such apiary work as can be done at that time of year. He can read other good literature, get acquainted with his family, and have a good time generally, besides.

JAMES HEDDON.

In doing all such work as can be done at this season, to be in readiness for the busy season with the bees. Don't wait till you need hives, boxes, frames, etc., before preparing them. Some time should also be given to reading and study.

L. C. ROOT.

Work at the trade he had before he was a bee-keeper; teach school; chop cord wood—no, I guess you mean as a bee-keeper. Read, read, think, plan, subscribe for more bee-journals, get more bee-books, attend conventions, visit other bee-keepers (if he thinks it won't bore them), get ready his hives, sections, and other things he'll need for the coming season.

C. C. MILLER.

If he has not made bee-keeping pay during the last five years, he had better spend his time in looking up some other business to take its place or add to it. I say this because I think we can not for the next five years look for any thing better. Supplies can be got ready for another season. If these are all ready, and he can not think of any thing that needs doing, he can—hibernate! P. H. ELWOOD.

In getting every thing he may need ready for the busy season—that is, taking for granted that they are in other business, which the majority are. For my part I give part of these leisure hours to field sport, as I find that I enjoy better appetite and health when I take a hunt every week during the winter. A few hours in the field, with good birds and a good gun is not only a pleasure but a fine tonic.

P. L. VIALLO.

Circumstances surrounding each individual bee-keeper vary so much that each one will have to answer this question for himself. Of course, he will have no leisure time until all work in preparation for next season's operations in the apiary, that can be done in the winter, is done. Some occupy their

time in study, some in teaching school, some in chopping wood, and other work for wages. This is an important question to all persons whose trades can not be followed during the winter, and each one will have to do that work which is the nearest him that he is fitted to do. O. O. POPPLETON.

I can recommend my own way, without much fear that any one will name a better way. Spend the spare hours, both winter and summer, in spreading the knowledge of the truth as it is in Jesus Christ. Still, many brethren would vote my way one of the worst that could be invented, and pronounce all who hold the faith as I hold it, to be mere vermin, beneath notice. E. E. HASTY.

If employment outside of bee-keeping is meant, each must decide for himself according to circumstances, and his own opportunities and capabilities. There are two ways in which a bee-keeper may very profitably employ his winter months. The first is in preparing every thing needed in the apiary, ready for immediate use the next summer. The second is in putting his product in the best possible condition for market, and then disposing of it to the best possible advantage. A little effort in this direction will bring very large returns. Many bee-keepers do not get nearly as much for their honey as they might. JAMES A. GREEN.

First, in serving God and doing our part in preparing for that future state of existence upon which we must all soon enter. Need I say that a large part of this work is in making yourself lovable by being always cheerful, and doing good to those about you for Christ's sake, thus allowing the light that is in you to shine out before the world for the Master's honor and glory? Get away from self, and enter heartily into that which shall make the world better, and advance the cause of our God and his kingdom. Second, post yourself intellectually regarding our beloved pursuit, bee-keeping, by reading what you can on the subject. Third, get every thing ready for the busy season of the next year, so as to be prepared for the large yield of honey which is coming. G. M. DOOLITTLE.

A bee-keeper should have no leisure hours; that is, hours in which he has nothing to do. Hours in which we do nothing but rest, both mentally and physically, are sometimes the most profitably spent. If the welfare of the spiritual part has not been provided for, I know of nothing in which the bee-keeper could better employ his leisure or any other hours than in making such provision for it as is desirable for present and eternal enjoyment.

'Tis religion that can give
Sweetest pleasure while we live;
'Tis religion must supply
Solid comfort when we die.

Another profitable way is to become better acquainted with one's neighbors. Oh, dear! I give it up; I can't answer that question. It is too "big" for the Question-Box. I never saw the time in which I didn't have or couldn't find something to do. I wish the hours were twice as long, then perhaps I could come nearer doing all that I should like to do. Now, don't let any one pitch into me for a discussion on the subject of religion, unless he incloses stamps for reply, and to pay for time, paper, and envelopes. There, Ernest, that looks pretty long for the Question-Box. Cut it to suit you, or leave it out entirely. DR. A. B. MASON.

I think, friends, that very much depends upon one's circumstances. A bee-keeper who is in debt, and who is constantly pressed by his debtors, ought to work hard at something all winter long, and I think he will find as much enjoyment in this way as in almost any of the things that have been mentioned. If he is comfortably off, he certainly ought to devote a good share of his time toward helping and encouraging those who always need help and encouragement round about him. I am very much pleased to see how many there are among our number who urge the importance of following Christ's last commission which he laid upon us—"Go ye into all the world and preach the gospel to every creature." This does not necessarily mean that we should go to foreign lands as missionaries, nor that we should feel that we are called upon to climb up into a pulpit. "Whether ye eat, or whether ye drink, do it all to the glory of God." When it comes to having real fun, I think every bee-keeper should have a greenhouse, so he can be happy in watching for sunshine, and in seeing things grow.

QUESTION 105.—*What do you do when you find a colony affected with dysentery in the cellar, and it is too early or too cold to give them a cleansing flight by removing them temporarily from the cellar?*

I do nothing.

GEO. GRIMM.

We let them go.

P. H. ELWOOD.

I generally let them alone, except to make the cellar warmer.

C. C. MILLER.

Nothing can be done, and we would not even look, for it does them harm to be disturbed.

DADANT & SON.

I place a wet cloth over the brood-frames, or throw a handful of salt into the entrance, or both.

CHAS. F. MUTH.

I do not winter in cellar much. I should do whatever I could to make them more quiet; and, beyond that, let them alone as much as possible.

E. E. HASTY.

I just let them alone and lose them. In nine cases out of ten, the more you tinker and fuss with them, the quicker they will die and the more you will lose.

JAMES HEDDON.

I mean to prevent this. I have cured them by giving them a flight in a warm room. This is best done by putting them in a large box and covering with netting.

A. J. COOK.

I have not had a colony affected with diarrhea in the cellar in years; and if I were to have, I would simply let them alone; for, as far as my experience goes, fussing with this never does any good.

G. M. DOOLITTLE.

I would let such colonies alone. The disturbance will injure others more than it will help those affected. If such a stock were at the bottom of the room it might be a benefit to raise it to the top, where it would be warmer.

L. C. ROOT.

I let them alone. If the bees are all right, and have suitable stores when put into the cellar, and the cellar is properly ventilated, and kept at the right temperature, say 38 or 40°, there will be no dysentery.

MRS. L. HARRISON.

I put them in a room of the bee-house in which is a stove, and warm them up to nearly 100° for several hours at a time, keeping the room perfectly dark, giving the hive free ventilation at top and bottom, and repeat the dose at intervals of several days if necessary.

H. R. BOARDMAN.

I let it alone, for none of my colonies are so badly affected as to need attention. I aim to have each colony provided with proper food in the fall, and then kept at the right temperature in the winter, and I have no trouble in wintering. Pollen, or bee-bread, is not a proper winter food for bees; and because "Rambler" saw the "pollen theory" "go up in a balloon" is no evidence that the theory is not correct.

DR. A. B. MASON.

This is a subject that was discussed largely in the bee-papers just before GLEANINGS was born; and while I never experimented in giving cellar-wintered bees a cleansing flight, I have done so largely with bees that were being wintered out of doors. I did this by letting them fly on top of the hives in a shallow box covered with glass, the rays of the sun through the glass giving heat enough for the purpose when the outside air would be freezing. These experiments led to my learning the value of chaff as a winter protector for bees, and the use of the solar wax-extractor; but I am not satisfied that it was of material benefit to diseased bees. This experiment can be easily tried with cellar-wintered bees by removing them temporarily to a light warm room and putting on them a box some 5 or 6 inches deep, covered with glass, after opening the top of the hive so the bees can come up freely on top of the frames. While I have little faith in the practical value of such an experiment, it will cost but very little to try it, and may be of greater value than I think for.

O. O. POPPLETON.

Our older readers will remember that, about the time GLEANINGS was "born," as friend Poppleton expresses it. I had a greenhouse, or, rather, a large cold-frame, built on purpose to cure bees that had the dysentery. Well, it worked tiptop, providing we had warm sunny days, so the bees could be put outdoors not very long after they were cured (?) by the treatment in the greenhouse. If we didn't have days when they could be set out, and given a good fly under the blue vault of heaven, they had a kind of fashion of relapsing, and ultimately "going dead" in spite of the cure. They were not exactly like the Irishman's bird, that he shot as plainly as could be, but wouldn't die because it was so contrary; for after they had been doctored and cured, as plainly as could be, they died, just to be contrary. May be, if I had pushed my investigations further I might have triumphed over the difficulties; but, if I remember correctly, just about the time of these experiments, our good friend P. H. Elwood wrote to me, that even if they could be cured by the greenhouse treatment, it cost more than to buy some good healthy bees of somebody who had them, in the spring. At the low prices at which bees have been offered for some time back, it does not pay to fuss very much with weak and sickly colonies, providing one has some other occupation that pays him fair wages.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

A GOOD REPORT FROM ONE OF THE FRIENDS IN CALIFORNIA.

IT would do you good to see my bees tumbling in with pollen to-day. The tomato-vines that you saw on my fence are maturing fruit every day, and the hills of corn you saw are now in silk.

We have had more rain, and the prospect for a honey crop is good. I have not been able to decide whether I will go to the mountains this spring or not.

W. J. MORRISON.

Long Beach, Cal., Jan. 7, 1889.

I raised 32 bushels of Japanese buckwheat from $\frac{1}{2}$ bushel I got of you.

J. V. HURLESS.

Archer, O., Jan. 14, 1889.

PAINT FOR HIVES.

I have used lead oil, but I find a paint made by Lonoman & Martinez, of New York, wears best. Some of my hives have been painted five years with that paint, and are still in good condition.

Sara Sota, Fla., Jan. 8, 1889.

S. C. CORWIN.

DRONES IN WINTER.

Can you tell me how it is that I have drones in one of my hives at this time of year, Jan. 8? I never saw it before.

SETH TOMPKINS.

Tarrytown, N. Y.

[Friend T., the presence of the drones you mention is probably due to the mild weather. If such weather should continue they may be found in the hive throughout the winter. You will probably find considerable worker brood in the hives.]

AN EIGHT OR TEN FRAME HIVE FOR COMB HONEY.

Were you working for comb honey, and did not care to practice contracting the brood-chamber, would you prefer an eight or ten frame hive, of S. size?

A. B. BAIRD.

Belle Vernon, Pa., Jan. 7, 1889.

[Friend B., as your question states it I should prefer an 8-frame hive. Usually they would not require contraction with dummies.]

HIVES WITH DEAD-AIR CHAMBERS.

In having a dead-air chamber in a hive, would you have it between the packing and the outside wall, or would you have it between the packing and the bees?

H. F. GRESSMAN.

[You don't need a dead-air chamber if you have packing around the bees. It is used only when no packing of any kind is made use of. A chaff hive without chaff between the walls would be a dead-air-chamber hive; but if you insist that you want, in your locality, the dead air and packing both, it seems to us it would be immaterial whether the air-space were between the outside wall and the chaff, or the chaff and the inside wall.]

REPORT FROM OUR FRIEND DR. LAY.

We have had a very prosperous year in every thing except honey, and that a fair crop. Bees are in good condition, and all honey-plants are up and well advanced. We have had a wet season. We are yet enjoying garden vegetables. You were within 18 miles of our home when you were at Schulenburg, on your trip to California. I am sorry you could not stop with us. We are happy to note that GLEANINGS is improving all the while.

It is read by us with much pleasure.

J. E. LAY.

Hallettsville, Tex., Dec. 28, 1888.

TEXAS AND THE HORSEMINT.

Our main honey-plant here is horsemint, and I am fearful it will be scarce this year. It has been a warm wet winter so far, and there is a great deal of horsemint up and green, which will be killed if there comes a freeze, and I am afraid it will leave but little seed for spring. There is now blowing the coldest "norther" that has been felt this winter.

W. A. CARTMELL.

Crowley, Tex., Jan. 8, 1889.

PROSPECT FOR THE HONEY CROP IN TEXAS FOR 1889 NEVER BETTER.

The prospect for a big honey crop was never better in this part than at present. We have had a warm wet winter, and the horsemint is making its appearance in all of the waste places, and in many places even the wheat and oats on the cultivated lands. Yes, and the buds on the elm are swelled and bursted, and will be in bloom in a few days, and then our little Italian pets will be in their glory.

Cross Timbers, Texas, Jan. 14, 1889. L. B. SMITH.

SWARMING OUT IN JANUARY.

On Christmas day one colony of my bees rushed out and clustered on a tree. They stayed three or four minutes, separated, and went into three different hives. They were all right, but had to fight their way into the third hive. They swarmed out, probably because they had a sickly-looking queen, damp hive, and very little stores left behind. About 12 bees remained with the queen.

Wetheredville, Md., Jan. 9, 1889. J. A. HEIDLER.

[Friend H., I believe you are correct in your reasoning. Where bees get damp, they often swarm out in the way you mention. The dampness is usually caused because the cluster of bees is too small to produce sufficient heat to dry out the combs and bees.]

HONEY FROM HARD MAPLES.

Having noticed in GLEANINGS that there is a difference of opinion as to whether or not bees store honey from hard maple, I wish to state that last spring, before there was any other source of honey, I could have extracted more than 1000 lbs. of maple, or sugar-tree honey, but did not take much on account of its oily flavor. I have a 3-lb. can of pure honey from that source yet, and can send it to you if you would like to have it.

Clarksburg, Ind., Jan. 8, 1889. H. F. SHANNON.

[Friend S., I do not quite understand what you mean by the term "oily flavor." If you mean something like what we call "buddy," applied to the last sugar or molasses of the season, then I think I understand you. You may send us a sample of the honey by mail, in the little wooden block we mail you for the purpose.]

IN STRAIGHT ROWS.

Mr. Axtell says if trees are planted in perfect squares, or in straight rows two ways—that is, perfect rows east and west, and perfect rows north and south, then the diagonal rows will be perfectly straight and there will also be an infinity of them, provided the orchard be large enough. For proof of the above, you would only need to see one of our large cornfields when six inches high, that was planted perfectly with a check-rower.

Roseville, Ill.

Mrs. L. C. AXTELL.

[I know a check-rower will do it, my friend, if the operator is very careful to start on a line when he commences at each end; but the orange-trees in California were set so very exact that it made me think they had some new process for doing it rapidly and quickly. You will notice that the subject has been taken up by two other writers in this issue.]

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

WE extract the following from the *Independent* of Jan. 10, hoping it may carry conviction to the heart of some tobacco-using brother:

"A great majority of men go far beyond what may be called the temperate use of tobacco, and evidences of injury are easily found. It is only necessary to have some record of what the general health was previous to the taking-up of the habit, and to have observation cover a long enough time. The history of tobacco in the island of New Zealand furnishes a quite suggestive illustration for our purpose, and one on a large scale. When Europeans first visited New Zealand they found in the native Maoris the most finely developed and powerful men of any of the tribes inhabiting the islands of the Pacific. Since the introduction of tobacco, for which the Maoris developed a passionate liking, they have from this cause alone, it is said, become decimated in numbers, and at the same time reduced in stature and in physical well-being so as to be an altogether inferior type of men."

Mrs. Leeka has quit smoking, and she helps me with the bees. Please send her a smoker. If she takes to the weed again, I will pay for it.

THOS. W. LEEKA.

Losantville, Ind., June 15, 1888.

My husband has quit the use of tobacco in every form, after using it since he was a boy. He says if you send me a smoker, and he ever uses tobacco again he will pay you your price for the smoker.

Jantha, Mo., Aug. 3, 1888. E. C. HARPER.

I thank you most heartily for the *smoker* for my son, and freely promise to pay for the same, if there should be any falling back into evil habits. But I think that will never be, for my son has experienced religion.

MRS. J. E. BUTTOLPH.

Frasa, Tex., Nov. 2, 1888.

GOING BAIL FOR A NEIGHBOR.

A neighbor of mine has quit the use of tobacco through reading GLEANINGS, and my influence, and wished me to write for a smoker. He will pay for it if he ever uses tobacco again, and I am ready to pay for it if he don't. He has just commenced bee-keeping and has the A B C book.

Berlin, Wis. E. C. EAGLESFIELD.

TEN CENTS A DAY FOR TOBACCO, FOR TEN YEARS.

I quit using tobacco in every form, Nov. 5, 1880, after chewing an average of 10 cents' worth (?) a day for ten years. I shall stay quit, and I don't ask anybody to give me any thing for quitting or staying quit. The pleasure of doing without tobacco is far greater than the doing with it was to me.

J. A. GEETING.

Washington, Ind., 1888.

A MINISTER AGREES TO QUIT THE USE OF TOBACCO.

Rev. Giles M. Johnston, a young minister of the gospel, agrees to quit the use of tobacco; and if you will send him a smoker, I agree to pay for the same should he ever commence the use of it again.

G. C. HUGHES.

Pipestem, W. Va.

A BROKEN PLEDGE, BUT PAYS FOR THE SMOKER.

Please find 70 cts. to pay for a smoker that I sent for in 1887, for J. D. Stringer, who had quit using tobacco. He finally let the disease take hold of him again. He says the thirst is too great for him to resist. Please accept our thanks for your liberal effort to put down such a filthy, sinful habit.

J. H. MORRAN.

Dripping Springs, Tex., Sept. 23, 1888.

A GOOD REASON FOR STOPPING THE USE OF TOBACCO.

I have been in the filthy habit of using tobacco for two years; but by reading your Tobacco Column, and by taking advices from friends, I have concluded never to use such vile stuff again. Recently a young lady friend told me if I would not quit using tobacco she would not speak to me any more. How is that for tobacco? I am now 20 years old, and have been using it since I was 18. I never used it in any other way than smoking. I think your Tobacco Column is good. I should think it would turn a good many hearts from using tobacco. If you think I deserve a smoker, please send it; and if I ever in my life use tobacco again I will pay for two smokers.

A. A. RIEFF.

Mankato, Minn., Nov. 7, 1888.

WHY I STOPPED THE USE OF TOBACCO.

I did not quit tobacco by what I read in GLEANINGS, but I was a subscriber for GLEANINGS in 1885, and it might have had its influence. I quit tobacco in order to get a clean heart. I could not puff tobacco smoke in God's face, and ask him to bless me. I could not use tobacco to the glory of God, nor come to him with a clean mouth, and I could not enter into the holy of holies with my clothes saturated with the fumes of hell. I could not shoot God with the devil's best gun (tobacco), and claim to be on the Lord's side. I could not say, "God has taken me out of the depths of sin, but can't save me from tobacco." Jesus came to save his people from their sins. If I knew it would kill me to give up tobacco I would give it up, and go sweeping through the gates into the city of God. There will be no tobacco there.

EMSLEY L. FAULKNER.

Pentwater, Mich.

TWO YEARS AFTER HAVING QUIT THE USE OF TOBACCO.

Just two years ago to-day I quit the use of tobacco, after using it nearly thirty years. You may place the credit to friend Terry. His letter in GLEANINGS caused me to burn my stock of "Navy," and promise my dear wife never to use tobacco in any form again. I've do doubt you have a great many new subscribers that have never read his letter. Why not publish it again? Don't send me a smoker. You have never made enough of them to hire me to quit tobacco. Any married man who will "chaw" after reading friend Terry's article, and then promise to quit for a smoker, would, of course, swap his wife for one.

C. S. DOUBLEDAY,

Hamilton, Tex., Dec. 23, 1888.

OUR HOMES.

How amiable are thy tabernacles, O Lord of hosts! My soul longeth, yea, even fainteth for the courts of the Lord: my heart and my flesh crieth out for the living God.—Ps. 84:1, 2.

ANOTHER joyous and peaceful Sabbath (Dec. 9) is past. One of the happiest memories of my visit to California will be the pleasant meetings with Christian people. Saturday afternoon I found I had accepted all invitations except one, and my friends informed me the address was left by a young man who came on a bicycle, and who was quite deaf. He lived at Long Beach. I wanted to get off on my homeward trip, and I found two trains left at about the same time—one for Long Beach and the other for San Francisco. Which should it be? As I stood before the ticket-office I prayed for guidance. In a moment I decided. I found my friend building a new house, and not very well fixed to keep company over Sunday, and so I decided to go to the hotel; but he soon told me, with some hesitation, that, if I could put up with his quarters, it would save expense, and that I should be quite welcome. His "quarters" were a barn close by his new house, his wife being with friends until the new house should be finished. Now, it is a very common thing here to live in barns, and some of them very scanty ones at that; and I quite enjoyed the idea, especially as it seemed to promise an opportunity for me to discover what message it was the Master's wish I should deliver to this afflicted brother. After our supper at a restaurant, we sought our lodging-place. As it is remote from any house, I could talk as loud as I pleased, without being overheard. Deaf people often get very lonesome—did you know it? I was soon rejoiced to find my companion a sincere and devoted Christian, but he had met some perplexities, or, perhaps, conflicting advice, that he longed to submit to the author of "Our Homes," for he has taken and read GLEANINGS since it was a 25-cent quarterly. One of his troubles was that he had never been baptized, except in infancy, and somebody had told him such baptism was "no good." They had even loaned him a book to read, and he had compared the texts with the Bible, and they all "squared" exactly. I assured him there were multitudes of books that proved their teachings in this very way, and advised him to let the baptism rest right where it was, but to bestow his care and pains toward "doing justly, loving mercy, and walking humbly before God."

"But, Mr. Root, there isn't a word in the Bible about infant baptism."

"Neither is there a word about Sunday-schools, yet you and I are going to the very first one in the morning we can find."

He had actually been thinking of uniting with another church, just because his devoted and faithful parents had baptized him when he was too small to know any thing about it. His pastor did, it is true, consent to another baptism, but rather advised as I did, to let it remain as it was, and turn his

attention to things that were doing real harm.

"But, Mr. Root, one minister advises one way and another different. How can both be right?"

I told him it would be perfectly right for each one to follow the advice of *his* own pastor, in such matters.

"But, Mr. Root, I believe in taking the Bible exactly as it reads, without regard to any minister's advice;" but as he had his well-read Bible open on the top of his tool-chest, he pretty soon found a passage where it described an army "as the sands of the seashore," in numbers, and he was compelled to admit it was not to be taken literally, *as it read*.

"Well, Mr. Root, I think one ought to even black his shoes on Saturday night, to avoid working on Sunday."

"All right; that is a good and safe practical religion; bring your brush, and we will put it into practice at once."

"But, you don't need to black yours, according to your teaching, for you may not feel about it as I do."

"But I do think as you do to-night, any way; but if we get the blacking off in chasing after the horse in the morning, I should brush them up again, rather than to go to church with untidy shoes."

After we got to bed he questioned me as an eager child would; and when I got too sleepy to answer loud enough, he jokingly suggested I needn't be afraid of waking up the "people up stairs." At this I talked so loud a lot of geese the other side of the boards to the barn set up a cackle, and then we had a big laugh.

The joke about the upstairs was because the principal occupants were the stars of heaven.

"Mr. Root," said he, "were you ever tempted, when all alone by yourself?"

I told him that some of the hardest battles I had ever fought were in this very line, and his question took hold of me instantly.

"Well," he resumed, "did you ever try, at such times, singing a hymn?"

I told him I had never thought of it; but when he asked me if I would not sing one verse of some familiar hymn of my own, I felt it a privilege. Of course, I should have to sing quite loud to make him hear. It could not disturb any thing but the geese, and I had just had such a hearty laugh at the cackling that I was in very good trim to sing with energy. I sang, as well as I could,

"Guide me, O thou great Jehovah!"

At the close I asked him to sing something that had helped him when tempted; whereupon my poor deaf brother sang one of the most touching hymns I ever heard in my life. He commenced with a somewhat timid voice, but finally the beautiful sentiments seemed to give him inspiration; and I did not wonder at its close that such a hymn had power to banish evil spirits and evil suggestions. If he will write out the words I will at some future time give it to the readers of GLEANINGS.

When I was half asleep again, he pulled me by the shoulder, and suggested, "You forgot to wind your Waterbury."

"No, I didn't; I wind it *mornings*."

He replied with great gravity, "Do you feel sure it is right to do *so much work* (?) on Sunday?"

He gives a tenth of all his earnings to the Lord; but a while ago he was tempted to use some of "the Lord's money" to speculate in real estate, at the time of the "boom," but the real estate went down and the money was lost, and a good deal more with it; so he mortgaged some property to get the money to pay up (that is, the Lord's tenth) by giving the money thus obtained to benevolent and missionary work. Dare any of us say he went to *too great extremes* in this?

In the afternoon my friend suggested that we sit on the seats on the bluff, and read the Sunday-school papers we had received at school. As I looked a little demur, he suggested that it was no worse than to sit in the parlor of our boarding-place. I assented. On the way it occurred to me I should like to write a word or two to my wife, as we sat viewing the ocean; and as I looked up I saw paper and envelopes in a little booth on the sidewalk. Without a thought I extended a dime for the tablet in which I am now writing. Almost before the transaction was done, however, he stepped up and promptly and faithfully rebuked both of us. "Mr. Root, you are encouraging these people in *Sunday traffic*, and at the same time patronizing a tobacco-stand."

A pretty predicament for the editor of GLEANINGS, especially after all he has written about doing business on Sunday, and the use of tobacco—yes, and a spiritual adviser besides, whom *God* had sent.

I thanked him, and told him he was right. We sat on the bench on the cliff, but we did not look at the ocean much, and I didn't write my letter. We both began to feel we were not exactly where Christians ought to be, for many others were along the cliff and down on the roads. I had suggested visiting the jail, but they don't have any, for they never have had a saloon, and never expect to have one. May the good Lord direct two of his children this Sabbath afternoon. The prayer was answered very soon. A man came up rather out of breath, and inquired for A. I. Root. I at once jumped to the conclusion that he was the operator, and had a telegram for me, because something had happened at home. I started up.

"I am A. I. Root; what is wrong?"

"Nothing, only I have had a long hunt for you. I think I have been after you since about the time you saw those turkey buzzards 'nailed' up on the trees to dry."

At this there was a big laugh all around, and then he explained that their little girl came home from Sunday-school, declaring "*A. I. Root*" had been there. He assured her she must be mistaken; but she stoutly declared that the minister said, "Brother A. I. Root, of Medina, O.," would make the opening prayer, whereupon he set out to hunt him. He traced him to dinner, then to the Congregational Sunday-school, then off toward the ocean, and he thought probably he had gone off "hunting greenhouses" or something of the sort. How did he know

any thing about *me*? Why, he had taken GLEANINGS, even away back in Louisiana, and A. I. Root was a household word, even among the children. Would I not make his house my home while I stayed? How about visiting on Sunday? This new friend was a Baptist, the other brother a Methodist, and myself a Congregationalist. Surely we *three* ought to be able to decide how best to keep the Sabbath day holy under the circumstances. We accepted the Baptist brother's invitation, and, what do you think? It was close by the barn where we had stayed the night before. These two brothers were side by side in a far-off land, and yet both took and prized GLEANINGS, but might not have known it for weeks had I not made them acquainted. And it seems that almost every Sunday since I have been in California some *child* has spread the news of my whereabouts. I tell you, friends, it pays, in more ways than one, to be promptly on hand at both prayer-meeting and Sunday-school, no matter how old you are. Sabbath evening they had a wonderful temperance meeting, with all the pastors of Long Beach on the platform, and all the people (as a matter of course) filling the seats of a pretty good-sized tabernacle. I did not suppose so large an audience could be found, if every man, woman, and child attended; and I did not suppose the three pastors (although I had formed a very high opinion of them) could give us three such mighty temperance sermons.

I have praised California so much, perhaps I should touch lightly on its evils. Well, the Methodist pastor, in speaking on social purity, said that in Los Angeles alone there were four hundred—not men, but blots on creation—who made a business of enticing boys, and *girls too*, into houses of *ill-fame*. I hope this may be a mistake. I have been a good deal in the city of Los Angeles, and they seem to be a busy, God-fearing people.

Friend Morrison's good wife welcomed us to their home as warmly as did her kind husband; and even if we did visit some on Sunday, I believe the Savior looked down on us lovingly.

"O Mr. Root!" commenced our hostess, with her charming Southern accent; "there is one woman in this town I do wish you could know. She is rich, but she has so much of the grace of God that riches can not harm her. She has not only builded the Congregational church, but pays the minister almost herself." The speaker is a *Methodist*, and her husband a *Baptist*; but I believe this spirit is characteristic of Long Beach.

"Who is the beautiful lady that superintends the Congregational Sunday-school?" said I.

"Why, Mr. Root, you have seen her already."

I wondered, when I saw her giving directions, toward the close of the school, to see one with such a sweet, pure, childlike face, in a place of so much responsibility. She is the child of a Congregational minister; but her husband has been prospered, and has now immense wealth; but he evidently has as much faith in her as the rest of the peo-

ple there, for they too give very largely to all praiseworthy purposes.

Thus ended my fourth Sabbath in California, and also my 49th birthday, for it was the 9th of December.

MAPLE SUGAR AND SYRUP MAKING.

RECENT IMPROVEMENTS IN THE IMPLEMENTS.

Of course, bee-keepers can not all engage in the maple sugar and syrup industry, for they do not all have the maple-trees; and some that do, do not have the winter's frost; but almost all of them have a tooth for the products, therefore most of us are interested, either directly or indirectly, in the matter. The cut below shows a new cover, just brought out by the Record Manufacturing Co. Much sap is lost during windy days, by the wind; besides this, dirt, sticks, leaves, and insects, are blown into the sap, and certainly this does not improve the quality of the product. When the weather is warm and sunny, during a flow of sap, bees are also drowned by the thousands in open buckets. This cover obviates all these troubles.

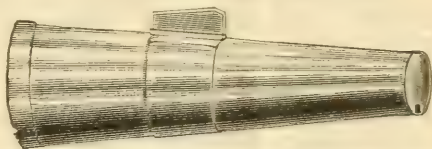


NEW TIN BUCKET, WITH TIN COVER ATTACHED FOR MAPLE-SUGAR MAKING.

These covers also, to a large extent, prevent freezing; for if the chilling wind is kept from striking the surface of the sap, it will be less liable to freeze, so as to injure the buckets, or so as to interfere with the handling of the sap. Last, but not least, rain and snow are kept out. It seems a little singular, but it has been abundantly proven, that the addition of rain water always makes the product darker colored. It is the gilt-edged syrup that commands the big price, like gilt-edged butter and honey. The latest improvement in the way of spouts or spiles, is the one shown next.

This differs from the one we illustrated some years ago, only by having the small end closed entirely by a cap. Through this cap a small orifice is made. This prevents the air from getting up into the bore in the tree, and oxidizing, or souring, the sap

when the run is small, the little orifice being closed air-tight by a minute globule of sap. Price 90c per 100, \$8.00 per 1000.



THE RECORD MANUFACTURING COMPANY'S SAPHILE.

The present price of the covers shown above is 7 cts. each, for less than 100. In complete packages of 100, just as they come from the factory, \$6.00. A sample can be sent by mail, at an additional expense of 10 cts. Prices of pails, 1X tin, per 100, 10 qt., \$17.00; 12 qt., \$18.00; 1 C tin, \$15 and \$16, respectively.

This cover has a cap, or hood, that covers the spout entirely; and at the same time the whole arrangement is, by an ingenious device, attached to any pail in an instant. The attachment is such that the cover is hinged so that it will open as shown in the cut.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 1, 1889.

I will delight myself in thy statutes: I will not forget thy word.—Ps. 119: 16.

THE QUINBY SMOKER IMPROVED.

W. E. CLARK, of Oriskany, N. Y., has sent us one of the latest Quinby, or L. C. Root smokers. The improvement consists in having the nozzle hinged by a suitable light malleable casting so that the operation of replenishing can be greatly facilitated. One of our objections to the hot-blast smokers has been the loose nozzles, and the bother of removing and putting them on when they are "all-fired hot." A hinged nozzle can be removed and replaced by a light tap of the fingers. For further information, write the address as above.

OUT-APARIES.

WITH this number we publish the first one of a series of articles on the subject as above, from the pen of one who has had a large experience—Dr. C. C. Miller. They will be continued through a number of issues. While they are designed primarily to instruct those who have little or no practical knowledge of the subject, and who, perhaps, seek such information, they doubtless will contain considerable value for those who have already had some practical experience along this line. If you are not a subscriber, enroll your name at once. This is an important theme, and you can not afford to lose the benefit of these articles.

We have at this date, 8390 subscribers.

NEW ADVERTISEMENTS.

AN unexpected crowd of new advertisements has obliged us to go to press, omitting much valuable matter that should have appeared in this issue. In our next we shall give you an extra eight pages.

LENDING GLEANINGS.

I THINK I have heard publishers find fault because some people borrow the paper and do not subscribe; but I rather like the idea of lending papers. Of course, there may be such a thing as carrying it too far, like borrowing the paper regularly each issue. But to encourage the friends in being neighborly with their copies of GLEANINGS, we shall be glad to have you lend them—that is, after you have read them; and whenever one is lost or soiled, just send us word and we will send you a nice clean one free of charge. We can do this just as well as not, because we almost always have surplus copies that get old, and have to be sold for paper-rags, or about the same. In fact, we have got tons of them stacked away in an old out-building now. Therefore, "Do good and lend, hoping for nothing again." I got the above suggestion from our friend Minnie Coulter, on page 62, last issue.

ALFALFA AND CUCUMBER HONEY.

C. C. MILLER, while in Pueblo, Col., purchased a sample of alfalfa honey of that region. On his arrival home at Marengo, Ill., he sent us this honey, together with a sample of cucumber honey. The flavor of the alfalfa is fully equal to clover, which it resembles closely. It is seldom that we take more than a good taste of honey sent as a sample; but after A. I. R. had tasted, E. R. R. and J. T. C. followed suit. With an expression of "That's good," we kept on scooping it up with our knife-blades until—well, there is just a little left for you to try. The fact that this plant yields from three to four crops of hay in a season, that it will grow in most Northern localities, together with the fact that it yields a superb honey, are no small recommendations in its favor. The flavor of the cucumber could hardly be called first-class, but on the whole it is better than the majority of the second-rate honeys. The taste reminds one a little of cucumber itself, and this becomes more evident a few moments after tasting.

LANGSTROTH ON THE HONEY-BEE, REVISED BY DADANT.

THE new book is finally on our table. It contains 521 pages, while Langstroth's old edition has only 387; and after turning over the leaves for perhaps half an hour (it came just as we were ready to go to press) I should say it gives the fullest and most comprehensive view of bee culture, up to the present day, of anything in print. The book is full from beginning to end of the finest engravings that ever graced any book on bee culture, or any other industry, for that matter. It is not devoted to any particular hive nor system of management, as is our own A B C book, but it mentions all the principal hives and methods in use, and at the same time friend Dadant indicates plainly his preference. I was very glad indeed to find, at the close of the chapter on "Hives," several pages devoted to "the hive we prefer;" and then he gives his reasons for his preference. Everybody is given full credit, so far as I can discover, for their own ideas and for their own inventions, and the book gives one an ex-

ceedingly pleasant idea of the friendly relations in which bee-keepers stand, the one to the other. There is not a word of discussion in it anywhere, that I know of, as to *who* invented this, that, and the other, or to whom credit belongs; and if our friends *have* here and there made a mistake or two in giving credit, I hope no one will be critical enough to take it up. We can send the book by mail, postpaid, for \$2.00; by freight or express with other goods, \$1.85. We have a few of Langstroth's old edition, which we will close out at 50 cts. less than the above, to those who may want one.

SPECIAL NOTICES.

WAX RENDERED BY THE SOLAR WAX-EXTRACTOR.

At the present time our regular advertised price for wax is 20 cts.; 25 cts. in trade. Now, for wax rendered by the solar wax-extractor—clean yellow wax with no impurities on the bottom of the cakes, we will pay 5 cts. more than the above prices. We think it is no more than fair and just, in consideration of the great superiority of sun rendered wax.

A NEW TEN-INCH FOUNDATION MILL FOR SALE.

This mill is one of our latest make, and has just reached its destination. Our customer finds that it requires more wax to dip from than he was prepared for, and now has changed his mind, and concluded to buy his foundation. The mill has never been taken out of the box. If any one in the West is contemplating buying one it will be considerable saving in freight to take this. The outfit, at catalogue prices, would be worth \$23; but we will sell it for \$22.00.

DARK-COLORED FOUNDATION.

Some time ago we advertised foundation, made of dark-colored wax, for 3 cts. less per lb.; but as the demand was constantly greater than the supply, we took the notice out. During the past year, however, we have saved up perhaps a ton, too dark in color to send out as regular foundation; but in my opinion it is exactly as good, in every respect, for brood-combs; but as it does not look quite so nice, we will furnish it, while the supply lasts, for 3 cts. per lb. less than the regular price. Perhaps it will be well to order soon if you want it.

FREIGHTS TO CALIFORNIA.

We find on investigation, that the rates of freight from here to California, on sections and bee-hive material in the flat, differ widely whether you take a carload or less than a carload. The rate from here to San Diego, Los Angeles, or Bakersfield, on a carload, is \$1.25 per 100; while if less than a carload is taken, \$2.90 is charged. In view of this fact, it will be greatly to your advantage if you all could club together in sending your orders, in regard to making up a carload, even if part of the load would have to be reshipped after it got there. Remember, this rate applies to fourth-class freight, under which head comes section boxes, and bee-hive material in the flat which can be called "box stuff." Material coming under a higher classification requires a higher rate.

ALSIKE CLOVER AWAY UP.

One of the largest dealers in seeds in the city of New York has just written us that the very best he can do on prime alsike at present is \$8.50 per bushel; and as this is the very price that we have been advertising it at retail of late, it leaves us in a rather bad predicament; but I rather enjoy it, after all. Do you know why? It is because bee-keepers who have alsike to dispose of are going to get a good price for it; and every bee-keeper ought to have some alsike clover seed to sell; in fact, raising alsike, buckwheat, rape, and seeds, that produce both grain and honey, should be a part of every bee-keeper's business. Now, then, those of you who have alsike to spare will please tell how much you have, and what you will take for it. Of course, we can not pay \$8.50, and furnish bags, and sell it out at retail for \$8.50. Another thing, most of the alsike we sell has to go through that new-fangled fanning-mill that goes by steam power, to make it

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 6 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth \$200. I will give somebody a rare bargain. Speak quick.
15tfdb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange one of Livingston's farm feed, or grist mills, for hand or power, as good as new, for Barnes foot-power saw.
2-3-4d H. L. FISHER, Milford, Kos. Co., Ind.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange a Barnes foot-power saw, combined circular and scroll, for a foundation-mill, 10-inch, A. I. Root's preferred.
3d MATHEW DODDS, Sauk Center, Stearns Co., Minn.

WANTED.—To exchange buzz-saw for power (not foot-power), 4 saws, 8 to 16 inch, all good as new. Also a few P. R. chicks, fine, warranted.
3d C. E. HATCH, Kentland, Newton Co., Ind.

WANTED.—To exchange bees in Simplicity hives, or History of Civilization, in four volumes, cost \$14.00, for B-flat clarinet.
3d PHIL FISHER, Hannibal, Monroe Co., O.

WANTED.—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first.
31tdb A. F. BRIGHT, Mazeppa, Wabasha Co., Minn.

WANTED.—To exchange Turner raspberry-plant, for improved poultry eggs or bee-supplies, or fine pig.
3-4d G. F. TYLER, Honey Grove, Fannin Co., Tex.

WANTED.—To exchange about 200 hives, to hold 4 L. frames, for queen-rearing, well painted, nearly new, for any thing useful. I will give any one a bargain.
3d C. D. DUVAL, Spencerville, Mont. Co., Md.

WANTED.—To exchange bee-supplies for a few thousand strawberry plants—Crescent and Sharpless.
3-14db W. E. CLARK, Oriskany, Oneida Co., N. Y.

WANTED.—To exchange volumes of the *American Bee Journal* and *GLEANINGS* for Japanese buckwheat, alsike, or mammoth red clover, or something else.
3d J. W. BARLOW, Burlington, Des Moines Co., Iowa.

WANTED.—Situation with some supply-dealer, apiarist, or honey-merchant, by a single man of 27, eleven years' experience; best of references. Distance no objection. Address
3d A. B. C., Groesbeck, Ohio.

WANTED.—To exchange a new 8x12 self-inking Monumental press, with a lot of type, cases, etc.; one 240-egg self-regulating incubator; one Monarch brooder, for 200 chicks; one brooder for 100 chicks, for 2 or 3 H. P. boiler and engine, section machine, cigar-box planer, honey, alsike clover seed, or offers.
3-4d J. T. FLETCHER, Clarion, Clarion Co., Pa.

WANTED.—To exchange a lot of Turner and Crimson Beauty raspberry-plants for other nursery stock, Italian queens, sections, eggs for hatching, etc. Write first.
3-4d E. R. MILLER, Garden City, Cass Co., Mo.

WANTED.—A good bee-man for an opening, Christian man preferred.
3d C. J. JOST, Banning, San Ber. Co., Cal.

WANTED.—To exchange Italian bees for timber or a "Springfield roadster."
31tdv L. HEINE, Bellmore, Queens Co., N. Y.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
OTTO KLEINOW, No. 150 Military Ave., Detroit, Mich.

WANTED.—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest.
31tdb R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED.—To exchange one well-drill, good as new, made in Aurora, Ill., cost \$450; will value at \$200, and exchange for bees or any kind of bee-supplies. This is a rare bargain. Address
S. RAY HOLBERT, Watson, Marion Co., W. Va.

WANTED.—As many Italian or hybrid bees as I can get for \$100, delivered here between May 1st and 10th. Who will give me the best bargain?
3d N. E. DOANE, Breckenridge, Gratiot Co., Mich.

WANTED.—To exchange 160 acres of fine land near Watertown, Dakota, for property in some good location for bee-keeping, or would take stock if not too far from here, or an apiary, in part payment, or offers.
3-4d J. L. COLE, Carlton Center, Barry Co., Mich.

SEND FOR HEDDON'S CIRCULARS. Address JAMES HEDDON DOWAGIAC, MICH.

3-4d In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS —OF— DADANT'S FOUNDATION SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Arwata, Ohio; Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb., and numerous other dealers.

Write for free samples, and price list of bee supplies. We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

CHAS. DADANT & SON,
31tdf Hamilton, Hancock Co., Illinois.

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Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 6 lines, and you must say you want your ad. In this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 30 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange for extracted honey, a 10 h. p. horizontal engine, worth \$200. I will give somebody a rare bargain. Speak quick.
15tdfb C. H. SMITH, Pittsfield, Mass.

WANTED.—To exchange one of Livingston's farm feed, or grist mills, for hand or power, as good as new, for Barnes foot-power saw.
2-3-4d H. L. FISHER, Milford, Kos. Co., Ind.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tdfb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first.
3ftdb A. F. BRIGHT, Mazeppa, Wabasha Co., Minn.

WANTED.—Two students for the coming season.
GEO. E. HILTON, Fremont, Mich. 4-5d

WANTED.—To exchange Turner raspberry-plant, for improved poultry eggs or bee-supplies, or fine pig.
3-4d G. F. TYLER, Honey Grove, Fannin Co., Tex.

WANTED.—To exchange a new 8x12 self-inking Monumental press, with a lot of type, cases, etc.; one 240-egg self-regulating incubator; one Monarch brooder, for 200 chicks; one brooder for 100 chicks, for 2 or 3 H. P. boiler and engine, section machine, cigar-box planer, honey, alsike clover seed, or offers.
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3-4d S. RAY HOLBERT, Watson, Marion Co., W. Va.

WANTED.—To exchange a Webster's Unabridged Dictionary for extracted honey or bees, with some one not too far distant. JOHN A. GEETING, 4d McKeesport, Pa.

WANTED.—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest. R. H. CAMPBELL, 3ftdb Madison, Morgan Co., Ga.

WANTED.—You to send for my illustrated Price List of supplies; Bees, Queens, etc. 4-5d GEO. E. HILTON, Fremont, Mich.

WANTED.—To exchange 160 acres of fine land near Watertown, Dakota, for property in some good location for bee-keeping, or would take stock if not too far from here, or an apiary, in part payment, or offers.
3-4d J. L. COLE, Carlton Center, Barry Co., Mich.

WANTED.—To exchange for honey or offers, about 25 colonies of Italian bees, in new, movable-frame hives, frames 9½x12¾ inside measure; 8 frames to the hive; also one second-hand Barnes foot-power combined saw.
CHAS. DOREMAN, Pittsburg, Tex.

WANTED.—To exchange one American Incubator, 250-egg capacity, about 50 nuclei, 2, 3, and 4 frame, 20 cts. each, about 50 Simplicity hives, 10 frame, \$1.00 each, for horse-power, corn-grinder, or any thing useful to a farmer. GEO. W. BAKER, 4-5d Milton, Wayne Co., Ind.

WANTED.—To exchange, house and lot with grapevine apiary of 50 colonies, Italio-Carniolans. Good location, and a good property, at a bargain. Also want to buy or rent an apiary in good location. JNO. C. CAPEHART, St. Albans, W. Va.

WANTED.—To exchange one Jones wax-extractor, or 275 side-opening sections, 375 ¼-lb. sections, 500 separators for Heddon case, 20 Simplicity hives, one Lamb knitting-machine, 50 Jones honey-cans, 5 lb.; 200 Concord grapevines, for 20 to 24 inch circular saw, type-writer, bicycle, camera, bees, or supplies. J. A. GREEN, Dayton, LaSalle Co., Ill. 4d

WANTED.—To exchange Italian bees for timber or a "Springfield roadster." L. HEINE, 3ftdb Bellmore, Queens Co., N. Y.

WANTED.—Bee-keepers in Missouri, Kansas, Nebraska, and Arkansas to learn something of value by addressing Rev. E. T. Abbott, St. Joe, Mo. 4-5

WANTED! Bee-Help. Will engage on favorable terms two young men, desirous of learning practical apiculture. None but strictly temperate need apply.
4-7d S. I. FREEBORN, Ithaca, Wis.

WANTED.—Correspondence with parties having Japanese buckwheat to sell, or exchange for supplies. JOS. NYSEWANDER, Des Moines, Ia. 4d

WANTED.—Situation in an apiary for the season of 1889, from 6 months to a term of years.
4-5d S. W. WHITE, Liberty, Clay Co., Mo.

WANTED.—To exchange one cutter-head, one dovetailing mandrel with saws, one six-inch rubber-belt, 30 ft. long; 50 ft. of three-inch rubber-belt, all as good as new, for bees or bee-keepers' supplies; also one six-inch Pelham fdn. mill. 4ftdb THOMAS GEDYE, Kangley, LaSalle Co., Ill.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
OTTO KLEINOW, No. 150 Military Ave., Detroit, Mich.

1889. Italian Queens. 1889.
For \$1.00 From Jan. till June.
2-4-6d N. ADAMS, Sorrento, Lake Co., Fla.

FOR SALE. In Winter Park, Fla., 5-acre
4d Address J. B. LA MONTAGNE, Orlando, Fla.

**DADANT'S FOUNDATION FACTORY, WHOLE-
SALE AND RETAIL.** See advertisement in another column. 3ftdb

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—Honey.—Prices are about the same as quoted last; but the demand from manufacturers is improving. We quote: Extracted honey at 5@8 on arrival. Prices of comb honey are nominal, at 12@16 in the jobbing way. *Beeswax.*—There is a good demand, which brings 20@22 on arrival, for good to choice yellow.

Feb. 12.

CHAS. F. MUTH & SON,
Cincinnati, Ohio.

St. Louis.—Honey.—The supply of honey is not large, but it is moving very slow. Choice comb honey is selling at 13@14; fair, 11@12; dark and broken, 8@10. Extracted, dark, in bbls., 4½@5; choice, 5½@6. In cans, dark, 5@5½; fair, 6@6½; choice, 7@8; fancy, 9. *Beeswax.* prime, 20. The outlook on honey is not very bright.

Feb. 9.

W. B. WESTCOTT & Co., St. Louis Mo.

KANSAS CITY.—Honey.—We quote: 1-lb. comb, white, 16; fall, 14; California white, 16; 2-lb. California white, 14; 2-lb. extra Cal'a, 13. Extracted, Cal'a white, 8; Cal'a amber, 7. *Beeswax.* 20@22.

CLEMONS, CLOON & Co.,
Kansas City, Mo.

Feb. 9.

CHICAGO.—Honey.—The supply of choice grades is light, and the prices are held at about 17; but sales are small. The off grades are moving very slowly, at lower figures. Extracted brings 7@8 for white and medium grades. *Beeswax.* 22.

Feb. 8.

R. A. BURNETT,
Chicago, Ill.

DETROIT.—Honey.—Best white comb in one-pound sections, 16@17 cents. Sales slow. Extracted, 9@10. *Beeswax.* 22@23.

Bell Branch, Mich., Feb. 11.

M. H. HUNT.

St. Louis.—Honey.—No material change in the market. Too much mild weather for good honey-trade. *Beeswax.* 20.

Feb. 9.

D. G. TUTT GRO. CO.,
St. Louis, Mo.

CLEVELAND.—Honey.—Market very dull and quiet. Very little No. 1 white in market. Price ranging from 15@18c.

Feb. 13.

A. C. KENDEL,
Cleveland, O.

FOR SALE.—I have a quantity of extracted honey in 50-lb. kegs, which I will sell at the following prices: 8c for the white and 7c for the amber, f. o. b. The honey is first-class. *C. H. STORDOCK,*
Durand, Ill.

✂New Orleans Apiary.✂

Early Queen Orders booked now for Italian or Carniolans. Warranted purely mated and safe arrival guaranteed. Address

4tfdb

J. W. WINDER, New Orleans, La.

✂ In responding to this advertisement mention GLEANINGS.

LOOK! LOOK AT THIS!

I am better prepared this year to fill all orders for queens, and bees by the pound than ever before. Send for price list for 1889. From 10 to 50 per cent off from last year's prices on all bee-supplies. Don't fail to get my prices before you place your orders, as you can save money by so doing.

4d Box 72. R. E. SMITH, TILBURY CENTER, ONTARIO, CAN.

1889. Italian Queens. 1889.

Having moved 8 miles from Nicholasville to a better location for bees, I will continue to raise queens, and more extensively than formerly. I will have the very best of Italians only. Select tested queens, in April, \$3.00; May, \$2.50; June, \$2.00; July 1 to Nov. 1, \$1.50. Queens warranted purely mated, \$1.00; 6 for \$5.00. Make money orders payable at Nicholasville. Send for circular.

4-5tfdb

J. T. WILSON,
Little Hickman, Jess. Co., Ky.

✂ In responding to this advertisement mention GLEANINGS.

READ, C. H. McFadden Still Works WAX.
Good work guaranteed. Send for sample foundation and price list of Italian bees, queens, and wax working.
4-8db CLARKSBURG, MONITEAU CO., MO.

YOUNG QUEENS

Ready to send out by return mail; price each, \$1.50.
J. W. TAYLOR, Ozan, Ark.

IF YOU ARE IN WANT OF

BEEES or BEE-KEEPERS' SUPPLIES,
Send for our New Catalogue.

4tfdb

OLIVER HOOVER & CO.,
Snydertown, Pa.

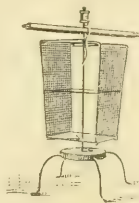
BEEES. IF YOU WANT BEEES,
Please Write for Prices.
4-9db S. A. SHUCK, LIVERPOOL, ILL.

SMALL-FRUIT PLANTS

Plants at one-half the usual price. All stock warranted. Good references. All of the leading varieties of Berries, Currants, and Grapes. Send postal card, and get prices.

4d

EZRA G. SMITH,
Manchester, Ontario Co., N. Y.



MELCHER'S
IMPROVED
EXTRACTORS
FOR \$2.50.

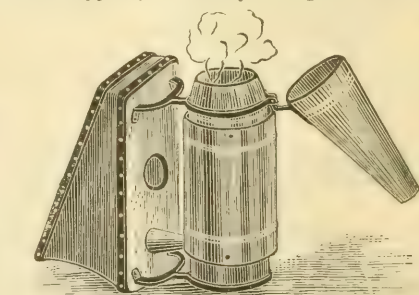
Territorial rights
for sale very cheap
Address

J. C. MELCHER,
O'QUINN, TEX.
4-10db



1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. CLARK'S illustrated price list. It is rock bottom for all supplies, and don't you forget it.



W. E. Clark's Improved Hinge-Nozzle Quinby
Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York.
3-14db ✂ Mention Gleanings.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column.

HONEY, BEES. QUEENS, SUPPLIES.

Catalogue Free.
OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

4 and 5 PER CENT DISCOUNTS IN FEB. AND MARCH! On QUEENS, BEES, APIARIAN SUPPLIES, JAPANESE BUCKWHEAT, and SEED POTATOES (20 varieties). Send for catalogue giving full particulars.

3-6db

CHAS. D. DUVALL,
Spencerville, Mont. Co., Md.

✂ In responding to this advertisement mention GLEANINGS.



Vol. XVII.

FEBRUARY 15, 1889.

No. 4.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
2 Copies for \$1.90; 3 for \$2.75, 5 for \$4.00;
10 or more, 75 cts. each. Single num-
ber, 5 cts. Additions to clubs may be
made at club rates. Above are all to
be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS
than 30 cts. each. Sent postpaid, in the
U. S. and Canada. To all other coun-
tries of the Universal Postal Union, 18
cts. per year extra. To all countries
not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES. NO. II.

CHOOSING A LOCATION.

AFTER deciding to have an out-apiary, you must decide on a location. It is quite likely that local circumstances will have a good deal to do in deciding. Some relative or friend may live somewhere near the proper distance, and I would not hesitate to have an apiary half a mile further or nearer, for the sake of being at a place where the people were pleasant to get along with. My first out-apiary was located at my father-in-law's, although it was a mile nearer than at that time I thought right. The second was reached by a roundabout way which makes me travel a mile or more extra, but a very pleasant relative lives there. The third was chosen mainly without reference to the people; and as the plan then taken in choosing was about the one I should in general advise, I will tell how it was done. One day, some time before I wanted to occupy the site, when we had plenty of time for a pleasant ride I took my wife and her sister in the buggy to prospect. I wanted them along because we three were the whole working force, and they were as much interested as I; and, besides, we would enjoy the ride. I knew about the direction, and something of the distance I wanted to go, so we rode along, discussing the different places as we came to them. "That place wouldn't do, for there isn't a spot where we could be in the shade, and we don't want to work in the hot sun." "There's a nice little grove, but it's too far from the house, and thieves would be likely to feel more free at such a distance from the house." "Those apple-trees would do nicely, only they are very close to the road, and we should be in plain sight of every one passing, which isn't so pleasant as being a little more private, and, besides, I suspect there would be more temptation to meddle with them at night, if some

meddler should see them so very plainly every time he passed by."

One or the other of the above objections lay in more or less force against all the places on the straight road and upon the side-roads until we came to one where was quite an evergreen grove right in front of the house, a hedge between one end of it and the road, so that we should be reasonably near the house, in a dense shade (too dense, I think), right close by the road, but entirely screened from it by the evergreen hedge. It was by odds the best place of all we had seen. The farmer was one with whom I had scarcely any acquaintance, but for many years I had known him by reputation as an upright man, and, moreover, I was strongly impressed in his favor from the fact that two sons who had been to school to me years before were manly, trustworthy fellows. So I drove up to the door.

"How do you do, Mr. Belden? I have too many bees at home, and I want to find a place to put some. What is the chance of my bringing some here?"

He replied, laughingly, "Oh! I couldn't have any bees here. They'd sting me every time I tried to do any thing with them."

"But," said I, "I don't want you to do any thing with them. We'll take all the care of them. All I ask of you is to let them stay here."

"Oh! if that's the way, bring on all you like, and welcome."

"And how much shall I pay you for rent and for trouble?"

"Oh! nothing at all."

And no insisting made any difference.

I want to press pretty strongly the matter of having nice people where you have an out-apiary. If things are unpleasant, you can't pick up and leave at a moment's warning, and it is in the power of your landlord to make it uncomfortable for you in

a good many ways. Little annoyances of which you can hardly complain may make every visit to be dreaded; whereas, with the right people, and the right behavior on *your part*, every visit will be anticipated with pleasure on both sides.

You may happen on a location otherwise suitable, only that it may be used as a pasture for farm stock, as many orchards are. Beyond the occasional displacing of a hive, I never knew any harm to come from this; and E. France says, "All five of our out-apiaries are used by owners of the land for pasture for farm stock, horses, cattle, pigs, sheep, etc., including poultry."

Marengo, Ill.

C. C. MILLER.

Friend M., may I suggest the importance of being "nice people" yourself? and, in fact, I do not believe that anybody ought to think of starting out-apiaries unless they are of the class that "thinketh no evil," "suffer long," etc.

HOW TO SELL HONEY, AND HOW TO MAKE MONEY.

VALUABLE SUGGESTIONS TO PRODUCERS.

IN my last letter to GLEANINGS I promised to write an article on the above subject. What I shall say at this time will refer to making sales direct to consumers. As I have succeeded so well in this, it may be due me to say that, whatever I may write on this subject, can not but be an advantage to many.

Here, we are not often blessed with good crops of honey; but even in seasons of bountiful yields, when choice comb honey is offered at 12½ cts. per lb., and 11 lbs. of finest extracted given for \$1.00, I never had to sell *my* honey at such low figures.

When seasons do occur where large crops of surplus have been secured, it is bad policy to force it all on the market the same year at unpaying prices, as it is altogether probable that the crop will be a light one the succeeding year. It is true, that comb honey looks its best when new, and should find a market at the earliest opportunity; but *extracted* honey, when properly cared for, will keep perfectly for years. If the price will not justify this year, it is sure to do so another. Here let us score one more point in favor of extracted honey; and so long as I can sell it at the same price I can get for honey in the comb, I'll keep on scoring points in its favor. I shall produce but little more comb honey; and as my purchases of honey in this shape generally result in loss from breakage by careless handling of the transportation companies, I have decided to have no more shipped to me at my own risk.

It may be urged, that it requires more time and greater effort to sell liquid honey. I think not; but even if this is true, it is a good thing. I can make twice the money producing it, or on that which I purchase, that I can on comb honey. The majority of those who make a specialty of producing honey have ample time to devote to making sales of their honey during the fall and winters, which time they would be glad to have profitably employed. Why, this unoccupied time is the chief trouble to many of the craft; then why not employ profitably to ourselves this time in selling our product at paying prices, direct to consumers, rather than suffer that which justly belongs to us to go into the hands

of speculators who may not—often do not—pay the shipper any thing? I have strong suspicions—judging from a complaint that was made recently in one of our bee-journals—that several barrels of honey which I bought of a certain commission dealer was obtained from a bee-keeper who received no pay for his honey.

Having secured a crop of honey, remuneration for toil depends entirely on the price the apiarist obtains from it. To those who have hitherto sold their honey at prices which have failed to satisfy you, I will now offer a few hints on "how to sell honey."

The great crop of honey obtained in 1886 filled this country to overflowing, and the bottom fell clear out of prices, as you all know. Well, I got out all right, and made money. I started a peddling wagon, driving through the country, selling to farmers and villagers, and my honey was all gone at good prices, almost before I was aware of it. This season I had no surplus, but have bought tons and tons of it at low enough figures, from dealers to whom some good bee-keepers had sent it for a "big price." Some changes have been made in my tactics this season; and as they have pleased me, I will give them to the reader. I have two sons, aged 17 and 19 respectively. These young fellows have learned how to sell honey too. Provided with order-books and samples of honey in small glass jars, they are ready to solicit orders in any town or city. Taking streets in regular order, every family is offered an opportunity to buy. Usually a few names of the first families of the town are secured, which serve well as leaders.

It is surprising, when these names are shown, how readily others fall in line with *their orders*. When a town is to be worked for the first time, the boys will say, "Papa, you had better tackle that place, as you can work the racket on 'em better than we can."

To become an expert in the art of selling liquid honey, tact, as well as experience, plays an important part. One must not talk as a drummer fresh from a commercial house would, but just as a farmer having a little honey to sell. Success in making sales depends largely on the manner of presenting the case. As a help, I will give an example.

Should the lady of the house answer our call, we would, with some dignity and a pleasantness of manner, bid her the time of day. At once the impression is made that a gentleman, not a tramp, is present, and an invitation is given to "come in." This is what we want, as it gives us an opportunity to become somewhat acquainted with our customer; and then we can give the *baby and all* a taste of honey, which is sure to get the children to say, "Mamma, do buy some, it's so nice." At this juncture we say, "Oh, yes! you see" (exhibiting the long list of names on the order-book) "nearly all the folks in town are giving me orders." This will generally "bring down the house;" but if the case requires more talking, we fill in the chinks by explaining the medicinal qualities of honey—how good it is for colds, coughs, often saving doctors' bills, etc. If this doesn't do the work, you'd better waste no more time. We never take orders for less than one dollar's worth, as we find it doesn't pay.

When orders for a few thousand pounds have been taken, we begin at the starting-point to deliver. If roads are good, and distance not too great,

our team is sent with the honey, and necessary appliances for rapid delivery; otherwise we ship to destination, hiring a team to make deliveries. As a rule, honey is taken for use of team, boarding, lodging, etc. We carry about all the honey in 60-lb. tin cans, screw caps, two in a case. One case is made large enough to admit, when cans are raised tip, an oil-stove under them, that honey may be kept thinned, so it may be quickly run into the retailing-can, which holds 150 lbs., with gate soldered firmly, and this can is also raised in its case so that vessels may go under the gate, and an oil stove beneath the can. With this arrangement the honey is made to run out at once. Without this we could not get along in cold weather. We always take 50 to 100 lbs. more honey along than our orders call for; but even then, seldom have any to carry back.

Now, I am aware that many will say, after all. "Oh! I can never go to all this trouble to sell my honey; it won't pay me. I'll just do as I have been doing—ship my honey to some dealer, and let him sell it for me." Well, then, all right; do so, and I will get some of it cheap, and make the profit you lose—that is all.

I made a clear profit, in one day's sales, this fall, of \$26.00 on honey which some of you bee-keepers shipped to a commission man, and the price I paid for the honey may have satisfied the bee-keeper who produced it too. The least pay I have had selling direct to consumers this fall and winter was \$5.00 a day. Did my health permit any thing like constant work in the business, I would ask for nothing better.

Before closing I wish to say that I know there are many apiarists so located that their honey *must* be shipped to distant markets; but where there is any thing like a home market, use it, and use it well.

J. A. BUCHANAN.

Holiday's Cove, W. Va., Jan. 23, 1889.

Friend B., I presume you well remember that, about the time GLEANINGS was started, and for several years afterward, I was perhaps the strongest and most earnest champion of extracted honey, and it was with great reluctance that I finally gave way so far as to agree that comb might be almost as profitable, all things considered. I do believe you are right in regard to selling honey—that is, if the man who produces it has unoccupied time on his hands; and if he has not, I am inclined to think that he can hunt up some one who will dispose of his honey in the way you mention, to a good deal more profit than sending it to commission houses. Circumstances, however, may alter cases. A commission man who loves his business, and loves his customers' interests, as well as his own, would be a good deal in the line of somebody taking up the kind of work you describe. I also like the idea of taking a sample of the honey around first, and taking orders before delivering. The Moore brothers, whom we have mentioned once or twice before, have been for years doing this same kind of business; and they take great cities like Toledo and Cleveland, and canvass them thoroughly. For the first time this winter we have been selling not only honey, but the produce of our market garden, in just that way. The mild weather has made the roads so bad that it seemed too bad to ask a horse

to lug heavy vegetables around through the mud, before we knew where they were to be delivered; therefore the boys go out in the morning first and take orders just as you have described. If they sell enough to warrant taking a horse, then a horse is used; but a good deal of the time they use a couple of our light wheelbarrows, and get along quicker than even a horse. When there is sleighing they use light sleds, with a light box. In this way our fruit and vegetable rooms and cellars can be always kept orderly. The one who takes the orders goes and puts up in neat packages just what he wants and no more. The fruit and vegetables are not bruised by being bumped around in a wagon, and the honey is not mashed and soiled. Packages are handed to the purchaser, clean and tidy. We visit our customers every other day. The onions and lettuce and radishes—yes, and spinach too—can grow in our cold greenhouses until they are wanted, so we have no wilting and no stale goods on hand.—The picture you give us, of a father working side by side with his boys, is indeed a pleasant one; and although you do not mention it, friend B., I suppose that you and your boys have learned how unprofitable it is to have quarrels or any thing the least unpleasant with the people you call upon. One who goes from house to house needs not only tact but gentility. The suggestions you give us are very valuable.

CELLAR WINTERING.

SOME POINTS WELL TAKEN BY GEO. E. HILTON.

AS I am laid up for repairs with rheumatism, I have thoroughly digested GLEANINGS for Jan. 15, and will say a few words in conclusion.

CELLAR WINTERING VS. OUTDOOR WINTERING IN CHAFF HIVES.

For three winters I have been experimenting with a cellar above ground. The walls are 26 inches thick, 24 inches of which are sawdust, two inches air space, and then lathed and plastered inside. There is a cement floor. The only ventilation it has is a 5-inch pipe about the center, running within 2 inches of the cement floor. I have put in about 40 colonies each winter, a few in single-walled hives, the remainder in chaff hives, packed the same as outdoors, only the cover is removed. The cellar is 10x24x6 ft. high. They have wintered successfully every winter, only not as dry and bright as outdoors. My preference is chaff hives and outdoor wintering.

SECURING AN EXCLUSIVE LOCALITY, ETC.

I can hardly agree with you and friend Dilworth in regard to "exclusive right of territory." In the first place, I do not think it would be right; and in the second place I don't think it possible. I doubt very much your ability to find a community where *all* could be bought; and he of whom you could not purchase the agreement not to keep or allow bees to be kept on his premises would either keep or lease to some one else who would pasture the other fields you had purchased the right of, and what redress would you have? I see no other way than to let all try it who want to, and then let the "survival of the fittest" have the pasturage. A few

more seasons like the past two, and all survivors will have all the pasturage they need.

STORES FOR WINTER; LARGE CONSUMPTION — SEE QUESTION 102.

"Which is the more profitable—colonies that require from 20 to 25 lbs. to carry them through, or those that will get along on from 5 to 10 pounds?" Most decidedly, the former; and could I get them to use up another 10 lbs. between April 15 and June 1, I should consider it a good investment in this latitude. An extra 10 pounds of old fall honey means 25 lbs. of white clover, if it is in the fields. My bees go into winter quarters with nearer 40 lbs. than any thing else, and I have not only been successful in wintering, but in a good surplus also.

NOTES OF TRAVEL.

They are very interesting indeed. I am glad to hear friend Perrine has risen above his losses in the interest of apiculture, and of that wonderful ranch of our good friend David C. Cook. May God spare him yet many years of usefulness, as well as yourself, is my prayer.

GEO. E. HILTON.

Fremont, Mich.

I am glad to see so favorable a report for chaff hives and outdoor wintering, away up in the northern part of Michigan. In regard to bees and neighbors, I should like to have some of the friends try it and report. Go out and canvass your neighborhoods, and see what it will cost you to get a promise from each land-owner to agree not to keep bees, say for the next five years.

GIVING BEES WATER WHILE IN THE CELLAR.

ANSWERS TO PRACTICAL QUESTIONS.

A SUBSCRIBER to GLEANINGS propounds the following question: "Do bees in the cellar during winter need water? and if so, how is it given?" Bees that are wintering properly need no water, for, inasmuch as no brood is reared in the cellar, of any amount, they would have no use for it, even should they take it. As far as my experience goes, water is used by bees only during the time there is brood in the hive. Out of the colonies which I winter in the cellar, not one in ten have any brood, except a few eggs, when the bees are set from the cellar, whether the time of setting from the cellar be March 15th or May 1st. The year I kept the cellar warm with the oil-stove, brood-rearing was carried on to quite a large extent, so that the bees were very uneasy; and to see what effect water had on them I gave some to a few in a sponge at the entrance. This seemed to make those colonies more quiet; but as all eventually died, I do not know whether it was any benefit to them or not. One or two that brooded quite largely had enameled cloth over them; and although considerably weakened when set out in the spring they came out so as to finally make quite good colonies. These were more quiet than any of the rest, and I laid it to their getting water from the condensed moisture on the under side of the cloth. All know that moisture will so condense on these sheets as to form large drops, which is a great injury to weak and feeble colonies, by its dropping on the bees and making them so wet that they finally perish. However, I do not think it is best for bees to breed in the cellar, hence say that water is not necessary.

FRAMES FILLED WITH BROOD.

The same subscriber wishes to know how I compel bees to fill the brood-combs with brood in advance of the honey harvest. This is usually done by what is known as "the spreading of the brood." This, in short, is as follows: As early in the season as I think it will answer, or when there is little danger of very frosty nights, the brood which is found in the hive is reversed, by which is meant that the combs which now occupy the center of the brood-nest are placed on the outside, and those which are on the outside are put in the center. This puts the combs having the most as well as the oldest brood on the outside, while the young brood, which usually occupies only a small space in each comb, is placed in the center. This causes the queen to fill these partly filled combs very quickly with eggs—much more so than she otherwise would, so that we make quite an advance over what would have been had they not been disturbed. In a few days more, a comb from the outside of this brood is placed in the center of the brood-nest, which causes the queen to fill this comb quickly; and so on till all of the combs are filled with brood. If all are not quite as full of brood as you would like them, when the honey harvest arrives, reverse the brood-nest again, the same as you did at first, when you will have all of the combs full of brood, where the bees would be likely to store their first honey, thus causing the honey to go into the boxes, as the queen is never crowded with honey from the center of the brood-nest out toward the outside of the hive. The crowding of the queen is done from the bees putting their honey in the tops of the combs and at the sides, and then narrowing down on the brood space. If there are empty combs in the brood-chamber when the harvest arrives, these should be taken away, and the space which is left should be filled with dummies.

THE LATERAL PLAN.

Another correspondent wishes me to tell in GLEANINGS whether he can use wide frames on the lateral plan, "in the Heddon (old style) case, or the Lewis section-holder." Single-tier wide frames, as I use them, are not adapted to cases of any kind. They can be used right on top of any hive, by placing a wide board over them to shed the rain, but I much prefer what is termed a "cap," or "half-story cover," over them. In this way they can be used nicely, but they are especially adapted to chaff hives while using on the lateral plan, or to using on such hives as are placed in large packing-boxes, as is recommended in Hutchinson's book on comb honey. In these there is no limit to the spreading-out of wide frames on the lateral plan; while any one using common reason can see that such wide frames can not be used with any satisfaction in any of the case or super systems now before the public.

TEMPERATURE OF BEE-CAVES.

It would seem by the editor's comments at the foot of my article, that I have not fully made myself understood on all points regarding my bee cellar, or cave. As soon as the bees are out of the cellar in the spring, the doors are all opened wide, as well as all ventilators, in which shape it is left all summer, so as to thoroughly dry out what moisture the walls and earth overhead have absorbed during the winter. This, of course, causes the air inside the cellar to become nearly the same as it is outside. Occasionally I put in some boxes of bees,

when forming nuclei by the "caged bees" plan, which I have given in *GLEANINGS* during years past, when, if the doors are kept closed for two or three days, the temperature goes down to about 60° in July and August. As winter draws near (with the doors wide open), the ground cools off till I have the temperature inside, after the bees are put in, as spoken of in my last. Friend Root seems to be bound to compare these bee-caves with deep caverns in Kentucky and elsewhere, that go hundreds, if not thousands of feet, into the earth. While we call our winter repositories caves, yet if any one will turn to the description which I gave last year of mine, it will be seen that the surface of the roof, together with the sides above the surface of the earth around it, is nearly as great as the sides and bottom which are under ground, properly speaking, thus causing the mean temperature between the warm earth beneath and the cold air above to range from 43° to 46°, as I gave in my last.

Borodino, N. Y., Jan. 25, 1889. G. M. DOOLITTLE.

Prof. Cook experimented quite fully in the matter of giving bees water when kept in cellars, and I believe his decision was that, although bees will take water, and it seems to quiet them for the time, under certain circumstances, the result in the spring shows that colonies supplied with water are not only no better off, but, as a general thing, not as well off. They are more likely to die from dysentery than those that do not have water.—All right, old friend. No doubt I have got natural caves on the brain a little; but I have succeeded in bringing out the point I wanted; namely, that you managed to have your bee-cave quite a little colder than the average temperature of the earth below the frost-line; and this low temperature was secured by letting the severe weather outside affect the cellar to a certain extent in the manner you explain.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

GARDENING IN FEBRUARY, ETC.; HOW MUCH OF IT CAN WE DO PROFITABLY?

WELL, we can do a good deal. The sun is a good deal higher up, and consequently comes down with much more heat when it shines. If you want to see how rapidly the sun travels northward, just make a mark on the floor (that is, if you have got a south window that the sun shines through so as to strike the floor) where the shade of the top of the window falls. On this mark, write the date. Next day the sun shines, look again and see where the shadow comes. You will be surprised to find that the sun makes a different path every day; and at noontime the marks will be from one to two inches apart, where only a single day intervenes. This is a good study for the children, for it shows them plainly the motion of the earth and of the heavenly bodies.

Your cold-frames, greenhouses, or hot-beds, will now need attention at noon, or the plants may be scorched before you are aware of it. If possible I would have all these structures so you can go inside and consult your thermometer, or, when you get a little used to it, you can tell what tem-

perature the plants need, without a thermometer.

If you are going to raise plants for sale, now is the time to put your Early Jersey Wakefield cabbages into the seed-bed. The cabbage seed and celery seed sown in January should give plants now with the second leaves coming out, and this indicates that they are ready to be transplanted and need more room. During the latter part of February is also the proper time to sow the seed for your early tomato-plants. Every season we have a call for extra-large strong tomato-plants. When we are short, and do not want to spare them all, customers frequently offer a nickel apiece for them, especially when they are set in pots, so the plant can be turned out to show the mat of roots around the ball of earth. Such tomato-plants, at a nickel apiece, will pay tiptop for your time and trouble. Now, if, in addition to this, they are choice expensive varieties, you will probably have a great many customers who will willingly pay a dime apiece for the plants. If the foliage of the tomato itself indicates that it differs from the common kind, this will help call attention to it, and encourage people in wanting just one or two of the "new-fangled kind." Two years ago we sold a good many of the Mikado plants at 10 cents apiece—that is, extra-early and extra-strong plants. A year ago the Dwarf Champion brought a dime each—all we wanted to spare of them, on account of the beautiful dark-green foliage, and the thick stubby appearance of the plant itself. Good strong Ignatum plants will also probably bring 10 cents apiece at retail next May. We have a lot of them planted, and our first planting of Dwarf Champions are already transplanted into little pots. Everybody who sees them says, "Why! aren't they just as cute as can be?" As these little bits of pots now cost only about $\frac{1}{4}$ of a cent apiece, we can readily afford to sell plant and all for a nickel. In addition to offering single plants at high prices, you will need a lot of the plant-boxes described in our book, "What to Do." A little later on, these will sell readily for from 20 to 25 cents, box and all, each box containing one dozen plants. *Extra-strong* celery-plants will readily bring twice as much as ordinary plants; and it is a good plan to have some beautiful White Plume plants on hand to show to customers. Somebody will want them about as soon as they can be put outdoors, and it will pay very well to raise them, even if you do not get more than a cent apiece for them.

DANDELIONS UNDER GLASS.

For some years past, in the East, early dandelions for greens have commanded good prices. Here is something in regard to the matter from our friend who originated the Grand Rapids lettuce:

In your article on "Raising Winter Vegetables," I see you do not mention forced dandelions for greens. As my experience with them may be of some use to you, I give it. Early last spring I sowed $\frac{1}{4}$ lb. of the broad-leaved dandelion in rows one foot apart. They were cultivated, and thinned the same as salsify; were taken up in November, and

the most of them were trenched the same as celery, so as to be handy to get at any time during the winter. The rest of the roots were planted under the greenhouse benches, 4 inches apart each way, in good soil. Six weeks from planting they are ready for market; are about a foot high, of a light green, and the finest greens I ever saw, retailing here at 20 cts. per lb. I have just planted roots for a second crop.

EUGENE DAVIS.

Grand Rapids, Mich., Jan. 21, 1889.

Friend Davis was kind enough to send us a sample basket of the dandelions. They are not only beautifully white and handsome, but they are delicious when cooked in winter time. Physicians have for years past recommended the use of dandelions in the spring. They are cut off a little below the surface of the ground, so that some of the dandelion root comes along with the plant, and it is the root, I believe, that is claimed to possess medical properties. In selling dandelions you might mention this latter point if you think best.

If you have any turnips that have started to grow before you have got ready to use them, just plant them under the benches, as you do pie-plant and dandelions, and they will make an astonishing growth in a very few days. The yellowish-white tops, resembling the Golden Self-blanching celery a good deal in appearance, will be found, when cooked like asparagus, a most delicious dish.

Rhubarb, or pie-plant, can now be grown under the shed described for celery. Just dig up some roots and bury them in rich dirt, watering them occasionally; and if you have a temperature warm enough for the other plants, you will get delicious stalks of rhubarb. It seems to me the nicest pies I ever tasted were made from rhubarb-stalks grown in the greenhouse. If you have raised benches for your plants, under the benches is the place for the rhubarb.

THE GRAND RAPIDS LETTUCE.

As this is the season of the year when the great bulk of the lettuce will be planted in boxes or under glass, for the spring crop, we take pleasure in copying from the *American Garden* for February the following in regard to the Grand Rapids lettuce:

UPRIGHT LETTUCE IN THE GREENHOUSE.

In December, 1887, my attention was called to the culture of tall or open-head lettuce under glass and in the greenhouse. The subject was of greater interest, as I had heard and therefore assumed that it was impossible to raise the tall kind of lettuce under glass. The seeds used by the originator he calls "Grand Rapids" lettuce, and the plant in growth has the appearance of the Perpetual or the Hanson. It is a light green, upright, wrinkled, soft-head lettuce.

In correspondence with Mr. Eugene Davis, the originator of this lettuce, I was enabled in February last to receive by express from his houses heads weighing three-quarters of a pound each of as nice, tender lettuce as one would wish to see. Through his kindness, also, I had a few seeds of the lettuce sent me. Part of these I planted last March. In May they were set in open ground and made good growth; but from those saved for seed I secured but a few pods of seed last August. I planted the rest of the seed received from Mr. Davis in the spring, and the plants were set in the greenhouse in September. In November they had made a healthy growth, weighed about half a pound each, and were sold at the full price of head lettuce growing in the same house. Mr. Davis states that

this lettuce has been raised in that locality for the past ten years. There are about seventy-five greenhouses, 20x50 feet, in Grand Rapids, devoted to the culture of this lettuce exclusively, the product going east to New York, also to Chicago, Cincinnati, and Cleveland, shipped in paper-lined barrels, and sold by the pound at about 19 cents net. The selling by the pound pleases both buyer and seller. The average weight is about three-quarters of a pound to the head, some heads weighing 1½ pounds. The business is remunerative in those markets that receive a tall lettuce. Of course, where a head lettuce is demanded this would not sell.

The houses face the south, running east and west; the front is 3 feet high; the front rafters are 16 feet long, rising beyond the center to the ridge, the highest point, which is 10 feet above the house floor; the back rafters are 8 feet long, resting on a wall 6 feet high on the north side. The width of the houses is 20 feet and the length 50, 60, or 100 feet; 20x50 is safely heated by brick return flues and a wood fire, burning about eight cords of 4-foot wood, costing \$3 a cord, and between September and May yielding two or three crops of lettuce.

The benches were not solid; the dirt is 7 inches deep on boards resting on wooden supports and posts. The flue runs the whole length of the house, and the chimney is over the furnace; temperature can be maintained easily at 65°; the furnace filled at 9 p. m. will last until morning, and is kept going all day in the coldest weather. The 100-foot-long houses have a furnace at each end, 50 feet in length, being all one fire can easily heat.

With me the "Grand Rapids" lettuce proves less liable to rot, but less salable than head lettuce in the winter. Mr. Davis says: "It stands shipping better, and is not so liable to rot on the benches. The trouble with head lettuce with us is, if it gets to top rotting you can't stop it; this kind, the heads being more open, you can stop it at once." He also says: "I tried three kinds of head lettuce last winter, and I find it can not be sold by the pound at a profit to the grower; also when head lettuce gets its growth it must be sold at once; grown by the side of Grand Rapids lettuce it rotted and was not reliable. All who are trying the business here are making a success of it. This lettuce will grow as well in hot-beds as in hot-houses. In regard to weight, profit, etc., I have just finished (March 6, 1888) cutting one house, 20x60, and got 1400 pounds, which nets us 19 cents per pound. It gives better satisfaction sold by the pound. In a good season this lettuce is a heavy seeder. The past season my crop was very light, on account of dry weather."

Mr. Davis is a young man, probably thirty-seven years old, who has devoted sixteen years of study and experiment to the improvement of lettuce, with a view of growing it under glass. He started with the Black-seeded Simpson. He wanted lettuce that would not rot, of rapid growth, light-colored, handsome in appearance, crisp, tender, excellent in flavor, and that could be kept ten days or more without hurting, when ready for market, should the weather be unfavorable for shipping or the market dull. During this time the stock has not got into the hands of seedsmen.

In January, 1888, Mr. A. I. Root, of Medina, Ohio, paid \$50 for half a pound of seed, which is the only case of sale outside of Grand Rapids, where Mr. Davis supplies the seed to all who are in the business in that section. He says he has no seed for sale this year, but could have another season. His experiments have been conducted in his own interest, and not with a view to sell seeds or plants; but the subject is of sufficient importance to warrant continued investigation on the part of those engaged in raising lettuce under glass. I have no personal interests to serve in speaking of the subject. Mr. Davis has, by constant selection and improvement, succeeded in keeping the stock up to its present capabilities, from which it would speedily decline in the hands of a careless operator.

Hampden Co., Mass.

W. H. BULL.

MORE ABOUT THE GRAND RAPIDS LETTUCE; HOW TO CONSTRUCT A GREENHOUSE FOR LETTUCE; HOW TO WARM IT, ETC.

Friend Root:—In your issue for Feb. 1, 1889, Mr. Eugene Davis, of Grand Rapids, in answer to your fourth question, as to best mode of heating lettuce-houses, says: "Our houses are heated with flues running under the middle bench, constructed so as

to give as even a temperature as possible." Can you inform me how his furnace and flue is constructed, in order that it may give this even temperature all over the whole length of the house, the houses being 16 feet wide and 50 feet long?

Aldersholt, Ont., Can. ROY M. BLESSINGER.

We at once forwarded the above inquiry to friend Davis, who replies below:

Mr. Root:—The furnace and flue that gives the most even temperature in my greenhouses is made as follows: A pit is dug, 4 ft. deep and 4 ft. wide and 9 feet long. The furnace is 5 ft. long, 22 inches wide and 30 inches high to the top of the arch, inside measure; the walls are 8 inches thick and 24 inches high, arched over with two tiers of brick. This leaves the top of the furnace about 15 inches below the surface; 18 inches of furnace should be built in the shed, for the chimney to rest on. The furnace-door is 16 by 20 inches, with draft in the door. The flues are four brick high, laid flat, and seven inches wide inside, with double tier of brick on top, 20 feet from the furnace. The brick is laid flat, 40 ft. from the furnace; then with 9-inch sewer-tile to chimney, or brick set edgewise, 3 brick high. There should be a gradual rise in the flue from the furnace to the chimney. When firing with *green wood*, never close the drafts, as the gas from the wood will kill the plants.

The chimney is on top of the furnace. The reason for it is this: As soon as a fire is started in the furnace, the air is heated in the chimney, and gives a direct draft. There are no grates in the furnace. In the first one I built I used them; but I saw the draft was good enough without. Any one handy with a trowel can build the flues, furnace, and plaster the cistern.

I am afraid these directions are not very plain; but my hand is more used to a shovel or hoe than to a pen.

EUGENE DAVIS.

Grand Rapids, Mich., Jan. 25, 1889.

The article from the *American Garden*, it will be noticed, has also considerable to say about the construction of greenhouses for lettuce. Friend Davis sends us, also, some diagrams, but I think they will not be needed with the full explanation which has just been given.

BOXES FOR PROTECTING MELONS FROM FROST, ETC.

I wish to use, the coming season, quite a number of the boxes over my melons in the early spring, such as you wrote about having made for the purpose of protecting squash and cucumbers from frost, etc. My object is to protect my melons from frost, so that I can force them very early. We had a killing frost last spring after melons had been up three weeks. This is what I wish to avoid in future. Please answer the following questions; and if you can not give answers from experience, then give me your opinion about the matter.

1. Would not a box smaller than the one 8 by 10 do as well (say one taking a glass 6 x 6 inches), where one or two plants are in a hill?

2. Would it be good economy to use half as many boxes as hills, transplanting to the other or open hills from the boxes? One plant is all that is desired in each hill after thinning out the last time. We plant cantaloupes 7 to 8 ft. apart, and watermelons 9 to 10 ft. each way.

ALBERT WITTENMYER.

Emison, Ind., Dec. 27, 1888.

Friend W., the only trouble with your *small* boxes would be that the frost would, as you will readily perceive, be more likely to freeze the ground solid clear through under them. This could be avoided, however, by banking up the earth on the outside, when the freezing is severe. With our tin transplanting-tubes, you can transplant melon-vines without the least risk, and rarely with any check in their growth. Another trouble with your small boxes would be that the vine would be very soon too large to be protected by it. This, however, does not as often happen with *boxes* as with the wire-cloth *baskets* for protecting them from the bugs. See what we said in regard to the matter on page 544, in GLEANINGS for 1888. My experience last season was not very favorable with the boxes for protecting plants from the frost. The *protection* is complete, and I saved my vines; but the discouraging feature about it was this: Seeds planted several weeks later, side by side with those that had been protected with so much pains, give melons and cucumbers almost as soon as the ones that had been started so early. I am inclined to think, however, that seasons as they usually come would give a different result. The same is true with tomatoes protected by the plant-boxes from the frost. We had so much wet weather, however, last season, that all kinds of vines kept growing, and did not commence to fruit as early as they do when we have more dry weather; that is, careful protection from frost resulted only in giving me *immense* plants; but they did not bear fruit any sooner than the *small* plants that had grown a much shorter time. We are going to get early tomatoes this year by planting them on *poor soil*; and I think if we could have kept off some of the extra amount of rain we had last year, from our melon-vines, we should have had *earlier melons*.

HENDERSON'S BUSH LIMA BEANS IN THEIR NATIVE STATE.

I see you have the bush lima bean illustrated, and I have read what you and others have said about it. We have had this bean with us two years, and perhaps longer. I planted a very few the past year, and gave them but little attention. Had I only known they would have been in such demand, I might have planted a quantity, and now been able to supply you and others.

J. W. HUDSON.

Maysville, S. C., Feb. 5, 1888.

Well done, friend H. I had a dim idea that perhaps GLEANINGS might be able to find out where these bush lima beans came from, for it makes its way into more nooks and corners than one might imagine, with a circulation of less than 9000. A great deal is due to the fact that it has a keen and enterprising set of readers, and a thing must be pretty difficult indeed if there is not one of them somewhere who gets hold of it. Now, don't you think that, if you "flax around lively," you can get hold of some of those beans somewhere in your vicinity? You need not tell anybody, but I will just whisper in your ear, they are worth about a cent apiece, even if they are small. And now, friend H., we want your private opinion publicly expressed, in regard to the

quality, compared with the big lima beans. And another thing, is it not a little tedious to gather and shell them, compared with shelling our great big ones—the “King of the Garden” limas, for instance? Who is there in your State or vicinity who can tell us more about the bush lima bean?

While I think of it, I want to complain a little of our good friend Peter Henderson. In all the glowing accounts we have had of these new lima beans, there is almost nothing said about their being so exceedingly small. When I opened my first package I was a good deal disgusted, and that is why I took particular pains to tell the readers of GLEANINGS what they might expect in the way of size before we sent out any of them. I know the temptation is strong to say all the good things we can about novelties, and to skip over the unpleasant part; but if a seedsman wants to keep the confidence of his patrons he will not only tell nothing but the truth, but he will tell the *whole* truth. Again, in Henderson's new catalogue quite a glowing account is given of a tomato called the Shah; but we learn that this is only a Mikado that is yellow instead of red. The first Mikados we ever got of Henderson gave us a few plants producing the yellow tomatoes; and for three years in succession we have noticed the same thing—occasionally a plant producing Mikados that were yellow; but as most of our patrons preferred the red tomato to the yellow one, we rejected them in saving tomatoes for seed, as being objectionable. Under the circumstances, is it right to bring this out as a variety? Nothing is said in the advertisement as to its being any more regular or any smoother than the Mikado. That being the case, I do not see how it can compare with the Golden Queen, which has for some years been before the people as a good-sized beautifully shaped yellow tomato.

Later.—In Landreth's new catalogue just received, we find a photograph of what he calls “Dwarf Carolina, or small lima beans.” The photograph shows a single stalk bearing an immense quantity of pods that look exactly like the pods represented by Henderson; and a package of the beans placed side by side of a package of Henderson's bush lima beans looks so exactly like them, that no one can tell the difference. Landreth charges 10 cents for a package of 25 beans, while Henderson charges 25 cents for the same. Henderson says his came from the South, and our correspondent from South Carolina says they have had them there for two years, and Landreth calls them Dwarf Carolina; so it seems pretty clear that it is one and the same thing. Landreth, however, does not herald them with any spread-eagle advertisement. Of course, we can tell *positively* that they are the same thing only after raising a crop of each. We can mail Landreth's at 10 cts. per packet, or Henderson's at 25 cts.

HOW TO RAISE SWEET-POTATO PLANTS.

I wish you would give some directions how to raise sweet-potato plants, as I am in the gardening business as well as the bee business.

Hastings, Neb., Feb. 1, 1889.

D. J. RADDICK.

Friend R., we have succeeded in getting a fine lot of sweet-potato-plants only once; then we cut the potatoes in two and turned them cut side down, and placed them in a warm spot in our greenhouse. They were very slow about starting, but we finally succeeded in getting some very nice plants. When they became crowded, and we didn't have customers, we pulled off the sprouts, or plants, and set them out exactly as we do celery and cabbage plants in our plant-garden, and they made strong thrifty plants about the time customers came for them. Such plants that have been transplanted so as to give them a good root, and make them strong and stocky, are certainly worth double the price of ordinary sweet-potato plants. If some of our readers are in the sweet-potato-plant business, and will give us a full account of how plants are raised for the garden, on a large scale, we will gladly pay them for the paper. Last season there was a scarcity, and we failed to get plants to fill orders, even though we telegraphed to many different points. Saving sweet potatoes so as to be in good trim by planting time, I believe is one of the most difficult points, especially here in the North; and if somebody who has nice potatoes suitable for plant-raising will advertise them in GLEANINGS, I think he would meet with abundant sales.

HOT-BEDS—HOW TO MAKE, ETC.

I should like some information on hot-beds, how and when to make them, and whether to use glass or oil cloth for frames. I want to sow my seeds about Feb. 15.

H. WHITE.

Spencer, O., Jan. 14, 1889.

Directions for making hot-beds have been given so frequently in most of our seed catalogues that it seems a good deal like repetition. The whole matter is very simple: My father-in-law used to make a very nice hot-bed on top of a smoking manure-heap. All he did was to dig down until he found the manure hot enough, then he put on three or four inches of good garden soil, set a box over it, and placed on top of the box a sash, banking the manure up around the box, clear up to the sash. He raised as fine plants as any I ever saw, by this means. Now, a hot-bed is nothing more than putting this manure into a square pit dug in the ground. They go into the ground to be more secure from frost, and to save the heat from the manure. The pit must be well drained, so that heavy rains will not drown every thing with ice water. Cloth is not as good as glass. In fact, it would not answer at all at a season of the year when we are liable to have heavy snowstorms. It is true, there is no danger of the plants being scorched by what sun gets through the cloth; and at a season when you simply wish to protect your plants from an occasional frost at night, the cloth answers every purpose. But the cheapest kind of common sheeting that we get at our dry-goods stores is every bit as good as the hot-bed cloth that has been advertised so much; in fact, we prefer the cheap cotton cloth from the stores. It is not so easily torn into shreds. Another trouble with cloth is,

the havoc that high winds make with the frames. We have chased after them so much, and wasted so much time in fastening them down, that we have about concluded the glass sash is cheaper in the end.

CORN SALAD.

You gave in GLEANINGS so excellent a plan for raising lettuce, would you not have the kindness to give advice for growing in cold-frames corn salad (fetticus, or lamb's lettuce), through GLEANINGS? It is much esteemed in the old country, but it needs there no planting, as it grows in all corn-fields spontaneously, and stands any weather and winter. It is there called "corn."

Sigel, Ill., Jan. 27, 1889.

DR. WM. HEER.

Friend A., we have some very fine corn salad now growing in one of our cold green-houses. We have raised it and sold it to some extent here in Medina. I believe, however, that but few people have learned to use it, except the Germans. We are very much obliged to you for the additional facts you give us, and we should be glad to be told more about it.

JAPANESE BUCKWHEAT; LIMA BEANS WITHOUT POLES, KAFFIR CORN FOR HOT-CAKES.

Here is my testimony regarding Japanese buckwheat: I sowed about a peck, and got 17 bushels. The seed came from Peter Henderson. We never saw a single bee at work on the blossoms, except the little wild "sweat" bees. The flour is equal to any buckwheat, and we sold it at 4 cts. per lb., but at the same price we sold 2 lbs. of the Kaffir-corn flour to one of buckwheat, and used the latter in our own family, most of the time. The garden talk found in your paper is very refreshing to me. The Henderson bush lima has caught the attention of gardeners; and if it did not look so small I would take more stock in it. Let me tell how I raise Jersey lima beans without poles. I run a fence, made of wires and lath, which can be had at 40 cts. per rod (3 strands and plastering lath), right where the row of limas is to stand. Plant the beans 6 inches apart, on the south side of the fence; and if they come up at all right, your row of limas will be the wonder of the neighborhood in September. I have picked a bushel of pods in two rods of fence.

Crete, Neb., Feb. 5, 1889.

M. S. BENEDICT.

The fact that you saw no bees on the blossoms, I do not think at all against the Japanese for honey, for many such reports have been made from common buckwheat. There are two causes that bring this about: First, the buckwheat may contain no honey, just as many other kinds of blossoms may contain no honey during certain seasons. Second, the bees may have found something else so much more to their liking that they would not notice the buckwheat. Sometimes, when this pasturage fails, they will start for the buckwheat with a sudden rush.—We have tasted the Kaffir-corn flour, for making cakes, in place of buckwheat, but we rather give the buckwheat the preference. The Kaffir corn, however, makes a very nice light cake.

WANTED, A SCHOOL FOR TEACHING GARDENING AND AGRICULTURE.

Dear Friend:—I received and read your book, How to Be Happy, with pleasure. It held my attention, though I know nothing about gardening. I

have taken a great notion for farm life, and I should like to know if you know of any schools teaching farm methods, dairying, fruit-tending, etc.—things you can not learn from books. I know there are State agricultural schools, and I have read of experimental and college farms, but nothing further.

MARY L. BONNER.

Davenport, Iowa, Jan. 17, 1889.

My good friend, our agricultural colleges, I think, will fill the bill exactly. The one at Lansing, Mich., has attained a world-wide celebrity; and the Experimental Station at Columbus, O., is beginning to become one of the institutions of which our State may well be proud. We should think that your own station in Iowa, where Prof. Chamberlain presides, who, by the way, has only recently left Ohio, would furnish all the advantages you wish.

FRIEND MARCH'S CABBAGE AND CAULIFLOWER SEED—REPORTS THEREFROM.

As far as my test is concerned, I can say I think they are extra. I put out nearly a hundred cauliflower-plants, and they all headed to a plant.

Wilsonville, Norfolk Co., Ont. ISAAC LUNDY.

From a five-cent packet of March's Select Very Early Jersey Wakefield cabbage seed bought of you last spring we got 431 nice strong plants; and after six kinds of bugs had satisfied their appetites, we got about 400 of the nicest cabbages I ever saw. We have just received a trial package of Ignoutum tomato seed, containing 26½ seeds, which we are going to plant in our little greenhouse, right off this minute.

B. L. SAGE.

New Haven, Conn., Jan. 24, 1889.

March's Jersey Wakefield cabbage seed, of which I bought of you one five-cent paper, gave me 340 strong, healthy plants. After I set them in the open ground the cut-worms proved to be very bad; and although I went over the patch every morning for a month, and caught from a dozen to 75 cut-worms a day, they destroyed half the plants; but all that were left made beautiful large and solid heads.

S. L. SHERMAN.

Oskaloosa, Ia., Jan. 9, 1889.

THE ONE-PIECE SECTIONS.

SUGGESTIONS IN REGARD TO THEIR BREAKING, ETC.

FRIEND ROOT:—My article in GLEANINGS, on "Folding Sections," brought me quite a number of letters and samples from different manufacturers. From these letters I deduct the following: 1. Sections made from old basswood are more liable to break than those made from young wood (second growth). 2. Kiln-drying destroys the elasticity of the wood, and makes it brittle, while air-drying does not have that effect.

3. The grooving-saws should not be too sharp-pointed on the edge, but rather a little rounding, so as to leave more wood in the bottom of the V-groove than is done by a sharp-pointed saw.

I am going to try sliced sections this year as their folding quality and rigidity after folding seems to be much superior, although in appearance they are not as "pretty" as sawed and sandpapered sections.

A PROPOSED SHIPPING-CASE.

I have in my mind's eye a (any) shipping-case for comb honey, with four little india-rubber balls, one under each corner. The balls should be solid, but with a hole through the center, just large enough to take a 2-inch wire nail. I suppose $\frac{3}{4}$ or 1 inch in diameter would be a good size for the balls. The wire nail should be "set in" so that the head would go to the center of the ball, and thus not interfere with its elasticity. I imagine that a case provided with 4 such balls under its corners would stand considerable bumping before the combs would break loose. What do you think of it? Would it be worth while—for you—to have them manufactured, and keep them for sale? Or would the balls interfere with the piling of cases on top of each other?

I once heard of a double packing-case with rubber balls between the cases, but I do not know if anybody ever used such. They would be too expensive, at any rate. WM. MUTH-RASMUSSEN.

Independence, Inyo Co., Cal., Jan. 7, 1889.

HONEY-EXHIBIT AT SPRING MILL.

AS ARRANGED BY J. W. NIMAN.

I HAVE taken the liberty to send you a photo of my apiarian exhibit at our county fair. As the name in the picture is something of a novelty, and has been admired by many thousands of people, I thought it might be of interest to the thousands of readers of GLEANINGS. I will here give you a brief description of the picture. At the extreme left is a bee-tent; next is a solar wax-extractor, and adjoining it is a queen-excluding honey-board. A bee-hive with a capacity for 100 one-pound sections is next in order. Thirteen stars of solar-extracted wax, representing the thirteen original States, stand out conspicuously in the background; beneath it is a queen observatory hive. Next is a pyramid of glass jars of different sizes; above it, a glass case five feet long; in it the name of your humble servant, made by the bees, as you see there in the picture, and over five feet in length.



J. W. NIMAN'S HONEY-EXHIBIT, SPRING MILL, OHIO.

I believe you are right, friend M., on all the three points you make. The rubber balls have been suggested, and used to some extent, not only for honey, but for shipping eggs for hatching. The trouble is with honey, that, where one has 100 cases or more, it would not be practicable to have them all set on these rubber balls. Where one has a good crop of honey, he had better load it on the cars himself if possible. Put a good layer of straw under the cases, and pile them up one on top of the other. Pack straw between the cases, at the side of the car; then if you can have some careful man to attend to unloading them, they can be shipped by freight without injury. If it be necessary to transfer from one road to another, then comes in a difficulty that can be obviated only, perhaps, by securing the whole car, if the crop warrants, thus having it shipped to its destination without transferring.

A Novice honey-extractor is at my right. In my hand is a Langstroth brood-frame of new comb partly capped over. At my back is a large case of honey and wax, and near them are bee-smokers. Back of the Clark smoker you can see a corner of an old box hive, with brimstone matches sticking in it, such as were used in old times to kill the bees to get their honey. On the ground in front is the apiary tool-box and swarm-arresters on the top of it.

J. W. NIMAN.

Spring Mill, Ohio, Oct. 10, 1888.

Friend N., your exhibit does you great credit. Your name, built out in honeycomb by the bees, must have proved quite a curiosity to the many visitors. Those little bits of comb built in the frames, showing how the bees start their work, not only exhibit the beauty of workmanship on the part of the bees, but it teaches people how comb is built, and the way in which bees go about it.

THE TARANTULA.

PROF. COOK ADMITS THAT SPIDERS MAY BITE.

MISS FLORENCE GREEN, Welde, Col., writes me as follows: "I send you a specimen of tarantula—not a very good one, but I hope you will tell us all about it in GLEANINGS, especially whether it is poisonous or not. The people here say that it is. We take great pleasure in reading the articles on insects, and we shall be much pleased if you will notice this."



THE TARANTULA.

This is one of the largest of American spiders, and is found from California to Missouri, and south into Texas. I send a good drawing of the specimen, so that all may see just what manner of creature it is. The scientific name is *Mygale Hentzi*. It is brown, and the drawing gives the correct size. As will be seen, it, like all spiders, differs from an insect in having only two parts to the body—the cephalo-thorax—head-thorax—which bears the mouth organs, eyes, and legs, and the abdomen. Thus the head and thorax, instead of being separate, as they are in insects, are united. They have no antennae and no compound eyes, but eight simple eyes arranged in two rows, as seen in the figure. There are eight legs instead of six, as in insects. Those front leg-like appendages, which bear the curious claw-like organ, are not feet, but the maxillary palpi, and so belong to the mouth organs.

These are ground-spiders, and live in holes dug in the earth. As to whether these are very poisonous, or dangerously poisonous, I am not able to say. All spiders have fang-like jaws and poison-glands, with attached poison-sacs, and so can extrude poison with their bites; but our smaller spiders can not bite very severely, and the poison is too scant to do harm. I never hesitate to pick up a spider, and never could get one to bite me so as to hurt, much less poison me. Of course, such a Jumbo of a spider as the tarantula would frighten most people, and we can readily see how terrible stories might arise, solely as the product of fear and imagination. If the tarantula were a Michigan spider I should try it, possibly with gloved hands at first, and I should not be surprised if I should find that I could handle this as safely as our common and smaller spiders. Where it costs nothing, it is always best to be cautious, so I advise Florence not to handle the tarantula till she proves that it can not or will not bite. A. J. COOK.

Agricultural College, Mich.

Friend C., you say these spiders live in holes dug in the earth. That may be true;

but you do not give our readers any conception of what beautiful silken-lined holes these are where the tarantulas live. More than that, they have one of the prettiest little doors, hinged as daintily as the lid to a jewel-casket, and the spider can shut the door in the face of his visitors if he choose. When on my brother's farm, one of the little boys brought me a nest to bring home; but in some way it was forgotten. The silken gallery is a sort of tube, with sufficient tenacity so it can be handled without danger of breakage.

AN A B C SCHOLAR 62 YEARS OLD.

HOW SHE FINALLY TRIUMPHED OVER DIFFICULTIES AND DISAPPOINTMENTS, AND CAME OUT VICTORIOUS.

MR. ROOT, DEAR FRIEND:—We consider you as such, and your name has become a household word. I have been wanting to write you, to ask that you would continue GLEANINGS, although we can not send you the money quite yet, owing to sickness in my family. My husband has been out of health the past year. He has bronchial asthma, and has not been able to do any thing for many months. I had a hard time the past fall, getting my bees ready for winter, not being strong myself. I had about 80 colonies. I sold 10, and doubled until I now have 56, all strong and in good condition for winter in Root chaff hives (all but seven). I commenced the season with 50 colonies. It has been a very poor season in this part of the country. I got only about one-fourth of a crop, and that not nearly as good as in a good season, both extracted and comb honey.

Mr. Root, I have wanted to tell you that I owe you all the credit for my success, as I did not know any thing, scarcely, about bees when I commenced. I saw a few old copies of GLEANINGS at a friend's house while on a visit, which gave me a great desire to possess a colony of bees. We were poor, and in debt. I thought I could learn to care for them, and may be it would be a help. My husband had no faith in the idea, so he put me off; but finally, after much persuasion he purchased a light colony in an old box hive in the early spring. They did not cost much, as they were not worth much, for they swarmed out and went off. I did not know that they could be fed. I felt so bad about losing my bees that my husband then bought a good colony. I was so delighted I gave them every attention I could. They swarmed five times. I put them in the American hive, as it was in use here at that time. I was much elated with my success, and I thought I was going to show my husband that I could take care of bees. But I did not dare to open the hives; so when winter came they all died, of course, as the old colony had swarmed itself to death. I was sorely tried, but I had no idea of giving up—I had grown wiser. I learned of the A B C book. I sent for that and GLEANINGS, and went to studying. The next spring, 1880, I had an opportunity of taking three colonies on shares. I had all the increase and one-fourth the honey. Since then I have wintered with very small loss—some winters none. I now have 50 chaff hives; and as I thought that number was about all I had strength to care for with all my domestic duties, I have tried hard to keep them down to about that, by selling some

and doubling up in the fall. I have succeeded nobly in doing so, although I have had between 70 and 80 colonies several times. My husband is no bee-man, and does not like the business. Since I commenced I have taken between 13,000 and 14,000 lbs. of honey, over one-half extracted. It sells here now for 15 cents, comb; 12½ extracted. Those troublesome debts are paid, and we have built us a good new house, which we much needed, and my husband gives the "blessed bees" credit for most of it. My husband and son did the work. I am almost 62 years old. If I were younger I would try to care for a larger apiary, as I do not lose my enthusiasm for the care of bees. My health is not good, but much better than it used to be before I worked in the apiary—so much that I feel as though I wanted to thank you for the biographical sketches you sent out with GLEANINGS. I am very much interested in them, but most of all in the one that appeared in GLEANINGS for Dec. 15. I can not tell you how much we prize GLEANINGS. I shall take that as long as I have any thing to pay for it, while I live.

I have wished many times I had Our Homes in binding of some kind. I mean ever since they were commenced. I have wondered if you had them.

I feel to praise God every day of my life for his goodness to me, and for all the way in which he has led me, and for the success he has given me in my labors; for it has come through much prayer and humble trust in him that I have been able to accomplish the desire of my heart in getting an apiary established on a small scale, and it is a cherished desire yet to be able to do a little more in helping on the blessed cause of Christ in the world. I am especially interested in the American Missionary Association. Oh how I do want to help more in that direction!

I am almost frightened when I see how much I am trespassing on your precious time, but I will promise not to do so again. You seem so much like an old friend that I almost forget myself.

We get our supplies at Jamestown, as the freight is much less. I was sorry to change.

Farmers' Valley, Pa., Jan. 8, 1889. MRS. E. C. OLDS.

By all means call me "dear friend," if you feel like it, *my* dear friend. I can not tell you how much it rejoices my heart to know that you have ultimately triumphed in conquering the intricate and perplexing minutiae of bee-keeping. I am really afraid that, had you asked my advice, about the time of your repeated disasters, I should have urged you to give up the business, and not try any more, a good deal as your husband probably did. In fact, I should have thought it almost impossible that one so well advanced in years as yourself could conquer the difficulties that every beginner must meet. However, you have given us a grand illustration of what may be done by one who has a steady enthusiasm for any such industry, right along, year after year. You loved bee culture, and did not tire of it, even though beset with repeated disasters, and therefore you conquered. The point you make, where the debts were paid and the new house built, is not only refreshing, but it is a good rebuke to those who say after they have got old, and let their bees go to ruin through *lack of attention*, that "bee-keeping does not pay." I think your hus-

band and son must be exceedingly good-natured to follow your directions when they have no particular interest in the matter. Another encouraging thing, like our good friend Mrs. Axtell you have found your health improved, as well as your pocket-book; and the improvement came, too, without the use of medicines of any kind. Now, any outdoor industry that gives us renewed health, without the aid of medicine of any sort whatever, is a grand gift from God, even if we do not make any money by it at all. When it pays the debts and builds houses besides, it amounts to one of the grandest gifts that ever came from the hand of the all-wise Creator. No doubt your heart was stirred within you by the accounts of Mrs. Axtell's great achievement with honey-bees, for we notice that you too are interested in missions. Never mind about trespassing on my time, dear friends, when you have such a story to tell as we have just had in the above. You see, I have taken the liberty of putting in even your last paragraph also; and I will tell you why I did it. I want to say to you, and to all others of the friends who read GLEANINGS, that, whenever you can buy your supplies nearer home, so as to be the means of saving you freight, or in any other way, remember it does me good to hear of it, even if your money does go into the pocket of some other brother; for I hope I have grace enough in my heart to wish to have you all do what benefits you most. If the money did come to us here at the Home of the Honey-bees, it wouldn't go to our good brother at Jamestown; and I am not sure but it affords me just as much pleasure to think *he* has been receiving good-sized orders, as if they came right here to us.

JOTTINGS FROM AMATEUR EXPERT.

ENGLISH BEE-KEEPERS; CARNIOLANS AND OTHER RACES OF BEES.

FRIEND ERNEST:—Your letter of Dec. 6th is before me. So you have foraged out my name and address from friend Blow, and now wish to make use of me. I thank you for offering to put me on your list of paid contributors; that, I must decline. I never write for "grit," but for amusement; moreover, my experience with editors is that they are an arbitrary class of men, so I keep free of them; and if they do not treat me as I think I ought to be treated, I am then in a position to throw up the pen and make my bow. I shall, however, be pleased to include GLEANINGS among my friends, as I always read it with very great pleasure, and it is my wife's first favorite among bee-papers.

You suggest a host of subjects for me to give my views about, naming Carniolan bees first. A very innocent remark of mine in the *B. B. J.* raised an awful "storm in a teapot" about these bees; and when it came to high words it was brought to an abrupt end by the veto of the editor. For myself, I was not sorry; but for people who are likely to be eased of their money in the future as in the past, I was very sorry. There are immense numbers of queens imported into England every year; and in my wanderings about I see great numbers of vari-

ous races. The trouble is, they are so very much mixed. It matters little what race you select, the trouble is to depend on getting them pure. Carniolans are the last foreign race in great demand—if I except the Minorcan—and most of us had hoped an effort would be made by the queen-breeders to keep them pure; but it soon became evident to those who watched what was going on, with a critical eye, that the same old game had reached Carniola also. I do not wish to blame any one man for doing this, but I at least did expect some to endeavor to keep their hands clean of such practices by keeping the yellow races out of the breeding-grounds, instead of introducing stocks in numbers to breed from.

I presume you are not aware that our law of libel in England makes it a crime to write and publish the truth, if it is calculated to injure a man in his business. Dishonesty with us, as everywhere else, does not succeed in the end; but we have not the ready means of showing up any "fishy" tricks that you have in America, as the parties would soon down upon us and get heavy damages; consequently one has to be very cautious, and so have editors.

Now as to the Carniolan bees. Why are they such favorites with us? To understand the reason, you must understand the class of people who compose a large number of our bee-keepers. First, we have the farm laborers, who keep bees in the old-fashioned straw-skep hive. They are very numerous in the parish (township, an area of 4000 acres) in which I reside; there are quite 40 who keep from two up to a dozen such stocks each. They never buy a fresh queen or swarm, but simply hive whatever increase comes naturally, and take the swarms in autumn, and return the bees (or in some cases even brimstone them), and appropriate what honey they may have stored, and allow the old stocks to stand over winter. The only good thing about this method is, they have always young queens at the head of their colonies.

Next we have a class of people socially a stage above these, who keep bees in bar-frame hives on modern methods and read the bee-papers, and keep the bees for what they can get out of them, as well as a relaxation from other labors. In my parish I have two other such besides myself, but the three of us would not keep 50 stocks between us, as we can not find time from other duties to attend to more, and I keep the greater portion of that number, the other two not being such lovers of it as myself.

We next have a class of people who keep bees for pleasure and profit, who enjoy moderate incomes, who keep a daughter of the laboring classes in their houses to do the work as a "slavey," and a lad out of doors to do the pleasure-ground and garden, clean boots, and do odd jobs generally. As a rule, these people live fully up to their incomes, are very poor and very proud. Indoors the wife would not wash a cup or light a fire on any account, while out of doors the master would not hoe a weed in his garden, or run a lawn-mower, for a fortune, if he thought his neighbors would see him. These people keep poultry for the sake of the eggs they lay, as well as to have something to interest themselves in outside of their duties. They also keep bees for a similar purpose. These are the people who use the bee dresses and gloves, etc., that form a part of bee-gear with us, and a real

good stinging from a fiery-tempered stock of hybrids would really be serious to such people, as well as inconvenient. I remember meeting one such one day who offered to sell his five colonies in bar-frame hives cheap, to be rid of them quickly. He was dreadfully disfigured; and on my inquiring why he wished to sell them he replied he could not bear to walk up the street, as every one he met "chaffed" him so—"What! been out late?"

Having said so much about our social habits, and bearing in mind the fact that Carniolans are remarkably docile bees, you will readily understand why they are such favorites with this class of people. As honey-gatherers they are as good as many sold here for Italians; they are also better comb-builders, as a rule, and they certainly are far more reliable in temper.

Our farmers, with extremely rare exceptions, do not keep bees, nor do their sons, daughters, or wives, seem to take to it. This with you is the contrary, I believe. Many of us are compelled to keep our bees very near our houses and pleasure-grounds, consequently their tempers often have to be a great consideration with us. The characteristics of Italians, Cyprians, and Syrians, that you inquire about, I must leave to a future letter. This is "Boxing-day" with us, and consequently a general holiday spent in feasting and idleness, so I am spending it by putting up arrears of correspondence. December has been a month of mild, damp, foggy weather. The air is saturated with moisture; and in places where there are no fires you can wipe the moisture off painted woodwork and such like articles, so you may imagine what the hives are like on their summer stands. AMATEUR EXPERT.

Friend E., although your letter was directed to Ernest, I want to express to you my thanks for your kind letter to our readers. I am very glad indeed that you have taken hold of this matter of false pride in regard to doing necessary household duties, and that you have handled it without gloves. Although there are not very many in our country, so far as my knowledge extends, who are ashamed to wash the dishes, light the fire, weed garden, or run a lawn-mower, there is a constant tendency here in that direction—that is, there are certain people who are ashamed to be found doing these things. I suppose that you are well aware that I have been strongly opposed to any such romantic notions. A great many times, when well-dressed runners inquire for the "boss" they are surprised, and may be now and then disgusted, to find him not as well dressed as some of his workmen, and perhaps engaged in "weeding garden," as you express it. There may be such a thing, however, as too great extremes in this matter. My wife thinks many times I ought to take more pains to be tidy and neat than I do. Doubtless she is right; but she prefers to do her own housework; and when you pay us a visit, which I hope you sooner or later may do, very likely she will light the fire and cook the breakfast for us with her own hands. I often tell my helpers that I shall never ask them to do any thing that I should be ashamed to do myself, and I think this contributes greatly to the pleasant relations that exist between myself and all who are working for me.

My wife remembers enough about her childhood home in "Merry England" to give us very graphic accounts of the people, climate, etc., even including the dampness of the winters, which you mention.

NOT QUANTITY BUT QUALITY.

MRS. HARRISON OFFERS SOME GOOD SUGGESTIONS TO PRODUCERS AND SELLERS OF HONEY.

MR. ROOT:—Mrs. Chaddock, in telling what I sold extracted honey for, has caused letters to pour in upon me at a fearful rate, offering honey in barrels by the score. I wish to say to one and all, that I'm not in the commission business. If I wanted honey, I would either advertise for it, or write to those who I knew had it to sell. The reason why I get 20 cents per pound for extracted honey is this: I'm an old resident of this city, having lived here nearly all my life, and am well known. Although there may be plenty of honey at the stores, persons will come long distances to get ours, fearing adulteration, saying, "It's bees' honey I want."

Those who report such large yields of extracted honey, and claim to produce it so cheaply, are an injury to the craft. I always feel as though my extracted honey cost me the most. This cheap way is certainly not the best way. The honey that I'm selling is pure basswood. The combs were entirely empty at the advent of the flow, and extracted before sealing. It was a ground-hog case. We were out of honey. The boy who was digging out a woodchuck on Sunday morning, who was reprimanded by a minister driving by said, "I must have him; we are out of meat, and the minister is coming to our house for dinner to-day."

The honey, as it came from the extractor, ran into jars or tin vessels, which had cheese-cloth tied over the top. When they were full, fresh cheese-cloth was tied on them and placed in the sun. The weather was very hot and dry. It is a mistake to let the honey run from the extractor into barrels, without straining. If this honey were to pass through the hands of that careful and painstaking woman Mrs. Muth, it would come upon the market all right, but it may not be so fortunate. She told me, when I was there, that when she "cooked" honey, as she expressed it, she skimmed it as long as any scum would rise; and on looking at the skimmings with a magnifying-glass, broken legs and wings of bees could be seen.

In lieu of trying to see how much extracted honey can be produced, it would be better to aim at excellence. I do not see how any one can tier up until the close of the season, and then extract and keep each kind separate. I lately received a letter from a person, complaining that he purchased two barrels of extracted honey from Illinois for clover, which was not the kind represented, and that he lost money on his purchase. Judging from the tone of his letter, it is evident that he thinks no pure clover honey is produced in this State.

Mr. Muth appears to have taught his patrons so that they keep the different honeys distinct and separate, so that the flavor of apple, clover, basswood, etc., is easily detected. Will Mr. Muth now take the floor, and give us directions upon this subject, and in what way the trade demands it put up?

By the way, Peoria has no need for the honey called "amber." I would not offer it to my customers as an article of food. I saw some of this honey in a store; and on questioning the proprietor he said, "I didn't buy that honey; a man left it here, and I wish he would take it away, for I would as soon have soap-grease in my store." This honey may suit manufacturers, especially cigar-makers, but it is not fit for table use. MRS. L. HARRISON.

Peoria, Ill., Jan. 21, 1889.

My friend, you make a good point where you suggest that, if we tier up the whole product of the season, on the Dadant plan, we have our spring, summer, and autumn honey all mixed up. May be some of the combs contain clover honey, others basswood, and still others goldenrod; and I am afraid that the operation of extracting would not be so managed as to keep the different grades separate. We should like to have our friends Dadant tell us their experience in the matter. Your strictures on amber honey, it seems to me, are a little too broad. Well-ripened goldenrod or Spanish-needle honey is very nice, and, to a good many, just as delicious as clover and basswood, although the amber color is rather against the sale of it. I am well aware, however, that there is a good deal of honey on the market that is not fit for any thing, unless it is for some kind of "manufacturing" purposes.

THE EXCHANGE DEPARTMENT, AND ITS USE AND ABUSE.

TRADING "SIGHT UNSEEN."

WE have reason to fear, from complaints which have come in recently, that some of the advertisers in our Exchange Department have taken advantage of the persons with whom they have made a trade, somewhat in the manner indicated in the heading. It used to be common among boys, but we hope it is not so now, to trade knives "sight unseen." That such a practice is a species of gambling, no one will deny. To those of our readers who may not be acquainted with the plan, we would say that two boys, having each a knife which they desire to trade, make the following agreement: One of the boys, A, says to his companion, B, "Let's trade knives sight unseen." Each clasps firmly his own knife in such a way as to conceal it entirely, and then says, "Whole sides, whole blades, or no trade." The knives are passed to each other simultaneously. It matters not whether the knife is new or old, or whether the blades are steel or iron, the trade is effected, and one of the boys is almost sure to get the better of the bargain, while his companion fares the worse, of course.

Now, we have reason to fear that some of our advertisers in the Exchange Department are making their trades somewhat in the same way. Very recently a transaction took place as follows:

Mr. A advertised in the Wants and Exchange Department something to this effect: "Wanted to exchange, a Mason &

Hamlin organ, worth \$135, for a two-horse-power engine." Among the numerous answers received to this advertisement was one received from B, who stated that he had a two-horse-power Shipman engine that had been "used only a year," and which was "in perfect running order." This he offered to give in even trade for the organ. B referred A to the postmaster, who answered that B was a wealthy farmer, and that his reputation for honesty and veracity was not to be questioned. Certainly it would seem that A had taken the necessary precautions. The exchange was made; but A was greatly disappointed to find that the engine was one of the oldest styles of Shipman, and he did not think it had been used within five years. The shipper was careless enough to ship it without even crating it. The result was, that some of the legs, pipes, and gauges were broken. Indeed, A says it is not worth the freight he paid on it. A wrote B at once, and the latter sent \$7.00 to make good the repairs, stating that he had never used the engine at all, but *supposed* it was all right. He also said that he was more than pleased with the organ. A immediately felt relieved, and sent to the manufacturers for the necessary repairs. The latter stated that the engine was so old in design that they had no duplicate parts or patterns, and could not make the parts except at a great expense. A then wrote B to this effect; but B made no response, and A has not been able to get any response since, although he has written him a number of times. The engine is utterly worthless to A; and as he is at a distance from any shop where the necessary repairs could be made, he does not feel warranted in running the risk on the *mere possibility* of doing it any good.

A, the receiver of the engine, was in close circumstances, and the loss was a severe one. He says he did not mind so much the loss of the organ as the fact that the engine will not help him to make a living. In consequence of this trade, to meet a payment on a certain debt, he was obliged to sacrifice his bees at \$2.40 per colony. Each colony was bright yellow Italians, in double-walled chaff hives, and should not have been sold for less than \$10.00 or \$12.00. A says he feels no ill will toward anybody. He only wishes us to make it a warning to others who enter into such transactions.

The Exchange Department is, beyond question, a great benefit to honest advertisers, but it can be the means of fraud on the part of one or both parties. We have given the above incident in order that our readers may exercise caution. Be sure to ascertain that the article for which you wish to make an exchange is as good as represented, or that it is of a recent pattern; how long it has been used, and how much it is worth from a dollars-and-cents point of view. Be sure to ascertain all the facts in regard to the responsibility of the party with whom you think of making the transaction; and if the amount involved is considerable, be especially cautious. If possible, employ some competent party in the place to look at the goods for you.

QUESTION 102 RECONSIDERED.

ARE THOSE COLONIES WHICH CONSUME THE MOST STORES IN WINTER THE BEST COLONIES FOR BUSINESS?

ANSWERS to Question 102 show so wide a difference of opinion, that one must surely be at a loss to decide how near any of the answers might possibly be correct. Likely no definite answer can be given to the question.

The time given from October to May, seven months, is too long a time to reckon on for the consumption of stores per colony for wintering. With us, brood-rearing is carried on very heavily during April, and commences early in March. For those two months, as much honey will be consumed as during the four previous months. This is for our locality. There are exceptionally few localities where bees are confined seven months to their winter quarters; and, with such, brood-rearing must necessarily be going on. I think 30 or 40 lbs. of stores for a colony, seven months, with brood-rearing going on, is not too much. Messrs. Dadant & Son have not overestimated the amount for that period of time. Dr. A. B. Mason gives 6 to 11 pounds. He may be correct also; likely not, from October to May.

We have made cellar wintering our way for safe wintering for the past five years; and, to tell to a certainty what we gained besides the security of safe wintering, we weighed a sufficient number of colonies to get an average of what our colonies consumed while in confinement from the time they are put into the cellar and taken out, which is generally from Nov. 1st to April 1st—five months. We find for the past three winters that our colonies consumed from 3 to 12 pounds. The most of the number weighed consumed 8 and 9 pounds. We think those numbers would be very near an average for ours, only one colony consumed less than six pounds, and that one consumed 3 pounds, and was a strong colony. Said colony did as well as any that season (the summer of 1886).

In answer to the question, "Which is the more profitable, a colony which consumes more or less stores?" we could hardly say the one that consumed the most, if Question 102 means strictly the amount consumed in wintering. If 20 or 25 pounds of stores are used in wintering, and none of that amount is used for brood-rearing, that colony is no better off than if it had consumed 10 pounds if wintered in a suitable place. Colonies that we have wintered with suitable packing on their summer stands, consumed from 20 to 30 pounds in five months. Knowing the difference in stores used for outdoor and cellar wintering, we built another cellar two years ago at our out-apiary, and have now 100 colonies in it doing nicely. We have also 101 colonies at our home apiary in a cellar in which we could easily winter 400 colonies. The temperature at which our cellars are kept ranges from 40 to 45°. We haven't a single colony out of doors; and with the assurance of saving an average of 10 pounds of honey per colony, we think it pays to winter in the cellar.

J. NEBEL & SON.

High Hill, Mo., Jan. 21, 1889.

I know, friends, that certain colonies sometimes consume great quantities of stores, without being any better for it. But what I had in mind was where a colony consumes its stores in healthy brood-rearing, so as to require the larger amounts to

carry them clear through until the month of May.—The point you make in regard to the saving of stores by wintering in the cellar, even so far south as Missouri, is something worthy of consideration.

RAMBLE NO. 10.

THE USE OF A BLACKBOARD TO BEE-KEEPERS, ETC.

BEFORE starting upon this ramble I wish to show the fraternity a very handy article to have in the apiary. It is no more and no less than a common blackboard. Now, some one will probably say, "For conscience' sake, are there not enough traps now in the apiary, without lugging in a blackboard?"

Well, friends, let us explain. The hives in every well-regulated apiary are numbered, and have slates or something upon which to keep a record. If you put a record on the slate, of something to be attended to in a few hours or a few days, or even weeks, there isn't a bee-keeper having a large apiary but will often forget the record. The blackboard, if put up in a dry, conspicuous place, any fact placed upon it will be staring at you every time it is passed, and is thus a constant reminder of something to be attended to. Have you discovered a hive that needs more surplus room? If you are not ready just now to accommodate them, chalk it down on the board. Is there a queen to supersede, or have you caged a score of queens that need releasing at a certain time, chalk it down. We can not enumerate half of the items that will be put

facts, and there are many bee-keepers who will be interested in one very curious fact.

The pigeon is the only bird that feeds its young with digested food. We are all familiar with the method the old pigeon uses to accomplish this, with old and young bills interlocked; and some authorities go so far as to say that this food has had two digestions—first by the male bird, then by the female. Be this as it may, the effect is remarkable; for the growth of the young pigeon is unequaled by any other family of birds. When hatched, the little pigeon weighs about half an ounce; in six days it gains to four and one-half ounces; on the ninth day, over eight ounces; and at the age of one month, over twelve ounces, or somewhat heavier than one of its parents.

While other young birds have to digest the worm, grub, or grain, the pigeon simply grows with no exertion whatever; the prepared food is simply absorbed.

The bee-keeper will readily see that there is much similarity in the life of the young pigeon and young bee in the previous preparation of the food; and if the young pigeon has the benefit of two digestions, is there any reason to think that the royal jelly in the queen-cell is not the result of many digestions?

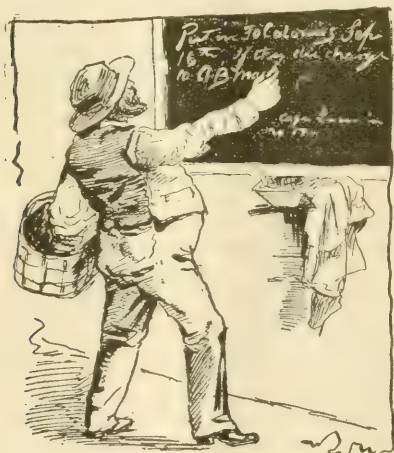
PORCUPINES.

Our next call was upon an accomplished and successful poultry-breeder, Miss Kincaid. We wished to investigate a new breed of poultry which was exciting the public for miles around, and about which people were indulging in much loose and inflated talk. These fowls were popularly called Porcupines.

The Rambler, upon presenting himself, was somewhat frustrated, as a modest man always is before beauty and talent; but after a few preliminary remarks about the weather and the crops, I felt entirely at ease, feeling that Miss K. was much like our own folks. In fact, she reminded me of my cousin Flora Jerusha. After stating that my business was mostly through curiosity to see her wonderful fowls, we adjourned to the neatly arranged poultry-yard; and the sight there presented fully aroused the curiosity of the Rambler. It is said that beauty is only skin deep on human bipeds; and so I suppose it is only feather deep on fowls; if so, then the beauty of the Porcupine fowls lies at the roots of the feathers. Beauty is not distinguishable on the surface. The prominent noticeable feature in the Porcupines is the position of the feathers, which are somewhat pointed, and stick out at all angles, but mostly toward the head. They are not quite so happy-appearing as other fowls, and the roosters have a dilapidated, disconsolate look. I was assured, however, that the hens were great layers, good sitters, and excellent mothers. Being of only medium size, they were not so well adapted to table use, but the meat was very tender, even to old age. While I was thus being favorably impressed with the fowls, a talkative neighbor came along and gave some more interesting points.

"Why," said he, "stranger, you can put them right down in a posy-bed, and they won't scratch. You see, if they kick back too far those sharp feathers prick their shins, and they stop instantan-

"Then, stranger, there is another point that shows their intellectual superiority. When they come to a hole in a fence, if their feathers prevent an easy passage head first, they jest turn around



THE RAMBLER'S BLACKBOARD.

upon the board during the season; but, believe the Rambler when he tells you it will save steps and worry, and enable you to do things at just the proper time. Try a blackboard. I give it to the fraternity. The record on our board now reads as seen in this sketch.

PIGEONS.

We ramble this time among the bird-fanciers. In our boyhood days, pigeons or doves were common among our best-loved pets; but if any one had asked us, a few months ago, if there was anything in the life of a pigeon that reminded us of bees, we would have given our head an incredulous shake. A short visit to a fancier gave us many interesting

and back through, tail first. It's very comical, stranger, very comical."



"VERY COMICAL, STRANGER, VERY COMICAL."

Miss K. frowned very heavily upon the fellow, and assured me that it was only a small specimen of the inflated talk that was going around the community about her poultry. After an interesting study of fowls of various strains, I ended my very pleasant call and went my way, thinking of the solid facts to my profit, and laughing at the chaff.

That the young women of our land have so many avenues through which to show their enterprise and success, rejoices the heart of the

RAMBLER.

Friend R., I do think your blackboard might be an excellent thing; in fact, a blackboard is now in use among our berry-pickers. As fast as the children bring in boxes of berries, the boss writes their name on the blackboard, and gives them credit. They watch him while he does it; and if they assent to his blackboard record, no further discussion is allowed in regard to it. In this way each one can see how he is getting along, compared to his companions; and when he has finished for the day there can be no discussion, because the whole story is not only in plain black and white, but in big figures and letters at that. It may not be necessary to inform our readers that the Rambler is supposed to have put his bees away for winter, on the plan recommended by friend "A. B. Ma—." With wonderful wisdom and forethought he is just in the act of noting that all that die are to be charged to the account of "A. B. Ma—."—I have often thought of this matter of the way pigeons feed their young on digested food. I did not know, however, of the wonderful rapidity of their growth. Now, I want you to tell us just one thing more: Of what age are the young pigeons when they sell them for table use? In many places they are considered a rarity, and bring large prices.—Why, old friend, you enjoyed yourself almost as much during your rambles as I did in California. Next time I take a trip I hereby give you notice to come along with me. Both of us together would probably find most things of interest; and you could hunt up the funny items.—Are we to understand that it is yourself with your hands on your knees in the picture, or is it the neighbor who said the new breed would not scratch, and that they crawled through fences back end first?

SIZE OF SECTIONS.

DR. MILLER DISCUSSES THE MATTER OF HAVING SECTIONS OF HONEY WEIGH EXACTLY ONE POUND.

THE foot-notes to friend Kelley's remarks on page 57 leave but little to be said; but as the matter is important, I may add a word. It is unfortunate, if not wrong, to call a thing more than it is, and I am in full accord with the idea that we should give good weight, and approve the motive that impels friend Kelley; but there are difficulties in the way that make it, I think, not desirable that we should try to get up a section that will sell uniformly as a pound. Most bee-keepers sell their honey in no smaller quantities than by the case; and I never knew a case of honey to be sold otherwise than by actual weight; so when you sell your grocer a case or a ton of honey, so far as you are concerned it doesn't matter a particle whether the sections average 15 or 17 ounces, nor whether the sections are uniform in weight, or vary a quarter of a pound. If there are 24 sections in the case weighing 22 lbs., you get pay for just the 22 lbs. you sold, and so far the transaction is a righteous one. Let us follow it up. If the grocer, as he should do, weighs every section he sells, and sells it for just what it weighs, then every thing is right to the end, no matter how light or heavy the sections may be.

Before going any further I will answer friend Kelley's request, and give some weights of the so-called 1-lb. sections; and in order to have a general result I will refer to my book and give the average weight in ounces of a section in a lot of sections in each one of five years, together with the average weight of a section in the lightest and heaviest case in each one of the lots.

	Average.	Lightest.	Heaviest.
1879	15.60	14.80	16.93
1881	16.34	15.00	18.00
1882	16.10	14.30	17.16
1883	14.62	13.66	15.30
1884	15.50	13.66	16.66

Notice, the number of ounces in the lightest and heaviest columns doesn't mean the lightest and heaviest section in the lot, but the average weight of a section in the lightest and heaviest case in the lot. Thus, the average weight of a section in the lightest case in 1884 was 13.66 ounces; and as these sections varied, the probability is that the lightest section in that case was not more than 13 oz. The heaviest case in the whole (in 1881) contained sections averaging 18 oz. each; and I have no idea that the heaviest section in that case weighed less than 18½ oz.

The first conclusion I reach from this table is one that surprises me. It is, that, with me, the 1-lb. section probably averages not less than 16 oz., taking it for a series of years. You will notice that there were three years when the average was below 16 oz., and only two years when the average was above. But the two crops of those two years were nearly as heavy as the three crops of the three other years; and I suspect that, if all the pound sections I ever raised were averaged, they would come as near 16 oz. as any size of section that could be made. Of course, I can't be sure of this, and I don't think it matters.

Let us now follow those two cases in which the sections averaged respectively 18 and 13.66 oz. I sold them by weight, so my conscience is all clear.

After leaving my hands I presume they went into the hands of two different grocers. If sold by weight there would be no trouble; but if sold by the section, the one grocer couldn't afford to sell at the same price per section as the other, so there would be trouble. But suppose both cases fell into the hands of the same man, and he sold them at the same price per section throughout, there would be injustice to the customer who paid the same price for 13.66 oz. that another did for 18. Every now and then some one starts up this subject, and I should like to impress the point that there is no such thing as a section that shall always weigh the same; and even if you succeed in finding one that will average 16 ounces this year it will probably differ next year. Now, friend Kelley, the thing to do is to quit striving for the unattainable, but use your influence to oppose selling sections by the piece, and insist on their being sold by weight. The former simply gives a chance for trickery, for I know there are some who sell by the piece; and it is a fact that the commission men will tell you that they can sell light sections better than heavy ones. Let us insist on weight in selling sections, always.

I am surprised to find that, notwithstanding the poor yield of 1888, 888 first-class sections averaged 15.7 ounces each. C. C. MILLER.

Marengo, Ill., Jan. 24, 1889.

There is another point, doctor: We should all of us beware about being in haste to accuse anybody of deliberate cheating. I am sure there are not many bee-keepers who have a desire to deceive their customers, especially on a matter where the use of a pair of scales would so quickly detect the fraud. Think what mischief has been done by being in haste to think evil in this matter of false statements in regard to the adulteration of honey!

NINE TONS OF HONEY.

BEES AND BERRIES.

I HAVE been much interested with your Notes of Travel. I was in California two years ago, and bought 10 acres of land 35 miles north of San Diego, in the Escondido Valley, and thought I should move out there as soon as I could get ready, but I am not as yet convinced that it is a better honey or strawberry country than this, or yet healthier. I put in cellar 180 colonies of bees this fall. The last two years I have extracted over 9 tons of honey. It has netted me about 6½ cents per pound. With the help of one hired man I work my 80-acre farm. I have help at my out-apiaries. I give them an interest in the bees.

Last summer I raised 41 bushels of strawberries on four rods less than one-fourth acre. I was busy with my bees when strawberries were ripe, so I told my wife that, if she would see to the picking of them, she might have all she could make and I would see that they were taken to town. She quietly pocketed 50 odd dollars, besides ten dollars in trade. I think it was the best investment I ever made, as it was so handy to borrow a dollar or two now and then, to be paid back when the honey was sold, and then it seemed to go so far. If I had had had it, it would have been gone in no time. I think if I live and have luck I shall do so again. I should like to raise comb honey, if it were not so much work, and not so much danger in shipping. I have

a plan on which I should like your opinion. It is simply a box, made of very light material, to hold 7 one-pound sections, with light tins nailed on the bottom, and a bee-space above, so they can be tiered up. Four of those would go on a hive, to be taken off completed, a box at a time, and shipped about 8 in a crate. The boxes could be covered with light berry-box material when packed in the crates, and nailed slightly with small wire nails. They could be pried apart a little, to lift the sections out.

Viroqua, Wis., Jan. 12, 1889.

WM. COX.

In regard to moving I think you are right; so long as you and your wife are doing as well as you have been doing where you are, I think I would let that California arrangement lie still, for you will have many drawbacks and inconveniences before you can get things into shape there.—There are several modifications of the plan you mention, for a honey-box holding 7 sections; but I believe they have not found very much favor. The arrangement is more expensive than the T supers, and does not seem to ship as safely as the ordinary cases made expressly for shipping the honey. If you ship the boxes, containing the 7 sections, with them, you have an additional amount of material to ship and to be returned if not lost.

THE PRESS STRAINER, FOR BEE-KEEPERS.

SOMETHING FOR EXPRESSING WAX AND SMALL QUANTITIES OF COMB.

I PRESUME that most of the friends have seen different forms of these fruit and vegetable press strainers advertised. In fact, a friend sent us a cut of one clear from Australia, saying that we certainly ought to keep that on our counters. The cut below gives a pretty good idea of the machine.



FRUIT AND VEGETABLE PRESS STRAINER.

It is simply a metal pocket, made of galvanized iron and heavily tinned plate. The sides of the pocket are made of perforated tin. To use it, raise the handle, fill the pocket with grapes, currants, strawberries, or any other sort of fruit. Now bring the handle down, and every particle of juice is squeezed out so as to leave but comparatively dry pomace. It can be used for mashing potatoes, prepared sweet potatoes, or pumpkins for pies, mashing turnips, making catsup, making beef tea or broth, rendering lard, and last, but not least, rendering wax on a small scale. Throw your pieces of comb into boiling water until they be-

come soft, then put them into the strainer and squeeze out the wax, or put your bits of comb into a coarse bag, not too large; and when it is boiling, drop it into the machine and push down the lever. The latter arrangement is also used for getting the juice from berries, and where there are many small seeds. If your paste or paint is lumpy, put it through the press and all your troubles in that direction are ended. In the same manner it can be used for almost a hundred different purposes. The regular price is 50 cents; but by buying them in quantities we can furnish them for 25 cents. If wanted by mail, you will have to send 20 cents extra.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

FASTENING FOUNDATION INTO BROOD-FRAMES BY NAILING IN A STRIP.

YOU will please find inclosed a small section of an improved top-bar for honey-frame. As it is very simple, it needs but little explanation. The object of this device is to facilitate the work of fastening the foundation in frames, one of the triangular strips being nailed fast, as you see. The comb being clamped between the two strips, the latter can either be fastened by nailing, or a little wax be used to make it stick. As you are a practical man, you will readily see the merits of this little invention (if it has any), without further explanation. I have shown the device to several bee-men, and they all seemed to think it a good thing. I do not send this as a "patent" to sell to you, but simply to give to you. If you can make use of it it will be a gratification to me if you do so. I am not a bee-man; in fact, I don't think I ever shall be. Being a mechanic, I am sometimes called upon to make a few hives, etc., for bee-men. My wife is a little struck on bees ever since she has been reading GLEANINGS.

Bellville, Tex., Jan. 15, 1889.

J. J. STOPPLE.

Your device, friend S., is very old. It was illustrated in one of the back numbers of our journal, GLEANINGS IN BEE CULTURE. It never came into practical use, for the reason that such a fastening costs too much, and was little if any better than the comb-guide method of attachment—that is, pressing a sheet of wax on to the guide.

A FOUL-BROOD INSPECTOR FOR CALIFORNIA.

The Board of Supervisors have seen fit to appoint me as foul-brood inspector for Ventura Co. The county pays me for my time. I think that, if the bee-keepers do not avail themselves of this opportunity of getting rid of foul brood it will not be the fault of the new Board of Supervisors.

HONEST BEES AND HONEST NEIGHBORS.

I remember that, when you were here, you expressed some surprise at my leaving 15 tons of honey in a frail shanty at the apiary, 10 miles from Newhall. I just came from the apiary, and I found every thing just as I left it in August. People don't steal bees or honey in California. I have been a bee-keeper for 16 years, but I never had my bees winter as well as they have this winter. I have 800 hives, and my loss this winter is only three

hives to the 100. About the same number are out of honey. The rest are full of honey, and I shall have to extract several tons before the new honey comes in. My bees are honest, as well as the people in California. I had six hives that were upset. They had been lying on their sides for months, for aught I know, with the supers full of honey, but were not robbed. This is a case of honesty or home protection (or what is it?). L. E. MERCER.

San Buena Ventura, Cal.

Friend M., it rejoices our hearts to hear of instances like those you mention above. The indications all seem to point now to the fact that we may not only very soon dispense with the fences around our dooryards, but that we may save money which we have heretofore invested in padlocks and expensive burglar-proof buildings to protect our property. You certainly have a very nice set of people around Ventura. Why, even here in Ohio, where we have schools and churches in every little town, and at a good many of the road-crossings, crops of wool and grain are quite frequently taken out of barns; at least, such cases did happen a few years ago. I wonder if it is not true, that the whole world is climbing up a little higher in this matter. I am very glad that you have received the appointment of inspector of foul brood, and I hope you will do your duty faithfully.

CALIFORNIA HONEY; ITS GRADES AND QUALITIES.

I have been very anxious to see something from you about the honey produced in California, as you no doubt had a good opportunity while there of learning from what source, and in what part of the State, the best honey is secured. I have bought and sold a good many tons of California honey this season. Some of the honey is, to my taste, the finest in color and flavor that is produced in the world, and, again, much of it is the most disagreeably flavored honey I have ever tasted, if I may except some of the dark grades of Southern honey. The white, or water-colored California honey (when entirely free from that disagreeable flavor found in almost all of the amber honey) is superior to our best clover honey. Every time I have sold this ill-flavored amber California honey it has greatly displeased customers. I wish I could find the producer or dealer in whom I could rely to give me always the best grade. It would be interesting to your readers to have what you must have learned about the different grades of honey produced in California.

J. A. BUCHANAN.

Holiday's Cove, W. Va., Jan. 7, 1889.

Friend B., the amber-colored honey of California comes mostly from the valleys and low lands. The beautiful water-white sage is found only among the mountains, and away up in the canyons, where the bears, and lack of civilization and neighbors, and many other things, make it unpleasant to camp out; and most of the bee-men, as I have told you, are getting back away from the fruit-lands, into the mountains, where the sages flourish. Other people besides ourselves have discovered the good qualities of the water-white mountain-sage honey of California; and whoever gets it in the future will have to pay a good price

for it. I am glad of it too, because it tends greatly to encourage pushing bee culture out among the mountain-wastes.

FEEDING BEES IN THE CELLAR.

I should like to ask you if it would be safe to feed in the cellar for the purpose of building up stocks, say $\frac{1}{2}$ pint every day. I mean, I should like to have them strong for the fruit-blossoms (about the 25th of April), which are very considerable here—apricot, cherry, plum, apple, peach, pear, raspberry, and others. If you can answer immediately, it will oblige me very much. M. D. OWEN.

Douglas, Mich., Feb. 5, 1889.

Friend O., feeding *has* been done in the cellar successfully, but a good many others have had trouble. If you want to feed liquid food, you will have to fasten the bees in the hive by means of wire cloth, or the excitement of feeding will make them come out—at least, it is pretty apt to do so; and if confined and fed a liquid food, they are quite likely to get the dysentery. By far the better way would be to give them candy; but I would by no means think of feeding them any thing unless it were to prevent them from starving. If you commence feeding them liquid food for stimulating, when they are gathering their first pollen, I think it will be soon enough; and even then I believe that many think that better results are obtained by giving them combs of sealed honey. Some recommend uncapping the honey to stimulate them to raising brood more rapidly; but urging brood ahead of the season is *likely* to do harm, no matter how you manage it.

WHY BEES BUILD COMB BETTER AT ONE TIME THAN AT ANOTHER.

C. C. Miller's problem as to whether bees build heavier comb at one time than at another, p. 20, is very satisfactorily solved. But in a super of mine containing 28 1-lb. sections I observed something so different from any thing that I had ever seen before, that I called the attention of Mr. C. C. Eddy, a bee-man, to know if he had ever witnessed any thing like it; and his reply was that he never had. If C. C. Miller's theory is universally true, then I should be pleased to know why all of the middle sections in a super I had, contained nice beautiful thinly drawn comb, while all the outside sections contained some of the heaviest and most ill-shaped comb I ever saw, resembling mud wasp cells. I use the house apiary. The supers are set on top of the hives, and with an oil-cloth cover on top, and nothing around the super. The doors were kept open, and there was plenty of ventilation, until the honey-flow closed. The colony to which the super in question belonged produced over 100 lbs. of comb honey the past season. J. A. GOLDEN.

Reinersville, O., Jan. 25, 1889.

As you state it, friend G., we feel pretty sure that you gave your bees *too* much ventilation—that is, their surplus receptacle was too cold for them to build uniform comb throughout the super. You say the middle sections contained thinly drawn comb, while the outside ones contained heavy comb. Of course, the middle sections were directly over the brood-nest, where there was the greatest warmth. The outside sections were subjected to the cool-

er air from without. You know that comb-building, in order to progress properly, should be in a close compartment, with a moderately high degree of temperature. The comb in the warmest parts of the super would work the most easily. That near the outside would work harder, and the bees would no doubt take less pains to thin it down.

A MINNESOTA BEE-CONVENTION.

A convention was organized here on the 17th of this month, for the purpose of getting together all the bee-keepers in the State, and many from Western Wisconsin and Northern Iowa, as quite a portion of those two States is near Minneapolis. The first meeting will be held at the Experimental Farm, with the Horticultural Society that meets in June next. All bee-keepers, and those interested in raising small fruits as well as bees, are earnestly requested to meet there. I assure you that you will have a good time. Due notice will be given through the bee-journals and the press. All correspondence will be cheerfully answered by the secretary,—

WM. URIE.

Minneapolis, Minn., Jan. 22, 1889.

THE MANZANITA OF CALIFORNIA, ETC.

I send you a twig of manzanita bloom. The bees have been working on it since the first of this month. We have had but little rain since you left. I will say nothing about the honey crop until I get it in tanks. I was sorry you could not stay with me a few days, but I suppose the old gent and I would have smoked you off the ranch. I hope to see some of your folks out next winter, to come and stay awhile.

G. W. LECHLER.

Newhall, Cal.

Friend L., we found a few bushes of the manzanita in bloom the day we left your beautiful ranch. Please give my respects to Mr. Friendship, the "old gent," as you call him, and tell him for me that, when you two old cronies have your big smoke, be sure that none of the boys are around, for it might teach them bad habits. I hope that huge tank will get filled a good many times during the coming season.

ROARING IN WINTER QUARTERS.

I wish to say a word in regard to Question 95, Dec. 15, page 969, about bees roaring in the cellar. A year ago last November, while passing through my bee-yard I heard a colony roaring so I could hear them plainly several paces off, and found them crawling on the bottom-board and front of the hive, outside; and upon opening the hive, every bee, so far as I could see, was on the move, as if looking for something, but none took wing. The temperature was several degrees below freezing, and the roaring lasted several hours. The next January I heard another roaring in the same way, in the cellar. I marked both hives, and in the spring found both queenless.

M. B. HAMMOND.

Ellenburgh Center, N. Y., Jan. 11, 1889.

Your point is, friend H., that this roaring is in consequence of queenlessness, or rather, perhaps, that the colony has just discovered that it is queenless. If giving them a queen results in quieting them, which it would, very likely, it would strengthen your position. I have seen colonies out of

doors in the summer time, running all over the hives, each bee making a mournful noise with its wings, and this happened not long after I had removed the queen; therefore I took it for granted that it was a lamentation over the loss of a queen. At such times the colony is pretty certain to accept any sort of queen you have on hand to give them; and some authors have recommended removing the queen and waiting until the bees begin to mourn or "roar," as you term it. The trouble is, however, the greater part of the time they start queen-cells without any roaring at all; at least, we do not discover any.

WHITE CLOVER; WHAT IS AND WHAT IS NOT FAVORABLE TO ITS GROWTH?

I should like to read a thorough essay on the subject of white clover, particularly as to what conditions are most favorable to its growth, and what kills it off so thoroughly some seasons. Five years ago, when I came to this State, it was abundant everywhere, and two fine crops of honey followed the succeeding years. Then the dry August and fall of 1886, followed by a severe winter, destroyed it almost completely. Was it the drouth or the winter, or both, that killed it? Will freezing and thawing kill it as it does wheat and red clover?

Chillicothe, Mo., Jan. 9, 1889.

B. A. RAPP.

I think that freezing and thawing does kill white clover, but I am not prepared to answer further as to why it is plentiful during some seasons and not at others.

THE EFFECTS OF THE RECENT CYCLONE IN A PENNSYLVANIA APIARY.

Wednesday afternoon, Jan. 9, we had a regular old-fashioned western cyclone. It went right through our bee-yard; and when I went out I would almost have given away bees, hives, and all. The wind upset 15 or 20 hives, dumped the bees on the ground, then carried the empty hives away. Some of the hives were blown 200 ft. I was out as soon as the worst was over, and picked up all I could. From some of the hives we lost over one-half the bees, as it was blowing and hailing. Next morning I went out and picked up bees by the handful, brought them in, and revived them. Within a square of our place, four houses were leveled to the ground, besides a part of a large factory just finished (Demorest sewing-machine factory), but happily no one was hurt. I hope the next cyclone will take another direction.

FRANK W. LIGHTON.

Newberry, Pa., Jan. 17, 1889.

Friend L., we are very sorry to hear of your losses during the storm of Jan. 9; but it verifies what I said about the warning the barometers gave us on that morning. Most of you, probably, have heard about the destruction of the bridge just below Niagara Falls, at the same time. I knew nothing about that when I wrote that editorial on page 69. Not only serious losses of property, but a great loss of life, resulted from that cyclone which our barometers foretold.

A NOVEL METHOD OF FINDING BEE-TREES, AND A GOOD ONE TOO.

Although out of season, I thought I would send you a plan for bee-hunting. Get on the north side of where the bees are likely to be, and in an open space if you can. Get a good line. If the sun has

passed that line for the day, leave it and go the next day; and when the sun gets on the line, with your hatchet in your hand start for the sun, lopping bushes or marking trees as you pass, and mark the line to the extent of where you think they go. Then retrace your line and find your bees. I have never failed to find them over four rods from my line, and that was where they were behind a high hill, and would pass a low point of the hill, and then take nearly a right angle to get to their home. If you get two or three lines, as I have sometimes, take the early one as the sun comes to it, and then the next, and so on. J. ANDREWS.

Pattens Mills, N. Y., Jan. 9, 1889.

THE BEST TREES, BOTH FOR TIMBER AND HONEY.

Do bees get honey from the following: White-ash and elm blossoms? soft maple? walnut-blossoms? honey-locust? box-elder? larch-blossoms? What trees are best to plant for the combined purposes of timber and honey? There are no natural forests here, but we plant our groves.

Sharon, Kas., Jan. 23, 1889.

J. L. PELTON.

I believe that bees occasionally work on all the trees you have mentioned, and, for that matter, there is scarcely a tree or plant known, that produces blossoms, that is not visited by the bees, say during an occasional season. Probably the best honey-plant in the world, all things considered, is basswood, and basswood timber is now bringing a very fair price, for a variety of purposes. I think I would put whitewood (or tulip) next. Perhaps others can help fill out the list.

DOES SHADING HIVES TEND TO DISCOURAGE SWARMING?

What effect would a shade over hives have on swarming—shade high enough for an operative to be able to walk under, the same as Casanova's, of Cuba, shade to be put up about June 1st, so bees would have the advantage of the sun nearly up to swarming time? What has been the average crop of honey for the last 10 years in the different localities of your answering correspondents? State comb and extracted. I. LANGSTROTH.

Seaforth, Ont., Can., Jan. 23, 1889.

It has been several times suggested that bees often swarm because their hives stand directly in the sun, and get too hot, especially where the hives are dark-colored. I am inclined to think that the color of the hive and its full exposure to the sun might have some effect in hastening the issuing of swarms.—The average crop of honey secured by the leading bee-keepers in the United States, according to reports in our Question-Box for Sept. 1, 1887, was 50 lbs. per colony for comb, and from 75 to 100 lbs. of extracted. While occasional yields ran away up beyond this, the average is pretty nearly as we have stated.

QUEENS INJURED BY SHIPPING.

On page 23, Jan. 1, I find: "If you and friend Doolittle are correct (and you may be to a certain extent), why is it that we have never heard more frequently of such failure of egg-laying before? Now, it is just possible that your last sentence explains the difference in our experiences." That is just it. Friend Root, of the 2000 or 3000 queens which you sell annually, these are all, except about

150 or 200 queens, of the untested ones, which are most invariably taken from a nucleus hive, in which they have never been required to fully stock themselves with eggs in order to supply their colony, as tested queens usually are necessarily compelled to do, and are usually removed to the shipping-cage while in that condition. This is very wrong. I have found that, to remove a laying queen, in the height of her laying season, from a populous colony, and ship her, generally speaking she is a failure, to a large extent thereafter, as a prolific layer. The same conditions may exist when we take a queen and cage her in a full colony for ten days, and she suffers no deterioration from it, being just as good as ever when she is liberated and gets down to business again. Therefore it has been my practice, the past year or two, when expecting to ship a queen that is in a strong colony, and a prolific layer, to either confine her to one or two frames in her own hive, or remove the hive to another stand, leaving the queen and two or three frames on the old stand for a few days before shipping her. It works like a charm—no complaint being made of queens so treated before being shipped. No matter how prolific they were before shipment, they are the same when received by the purchaser.

So, friends, never ask a queen-breeder to send you "a prolific queen out of one of your strongest colonies," as most buyers are apt to do when ordering a queen, especially if it is a tested one. Rather get a well-developed queen out of a nucleus or weak colony—one that is not overtaxed in egg-production at the time of shipment, but, rather, one that is capable of developing up to your requirements after you receive her.

Not one in a hundred, mailed from a nucleus or other small colony, have I ever had any complaint from. Queens appear to time their egg-production according to the requirements of their hives; hence in one instance it is very rapid; in the other, it is slow and more fitted to meet the requirements of shipment by mail, without loss or damage thereby.

ABBOTT L. SWINSON.

Goldsboro, N. C., Jan. 26, 1889.

I think you put it a little too strongly, friend S. While we do have now and then reports of extra prolific queens not laying at all after a trip through the mails, I do not believe that such reports come oftener than, say, two or three in every 100 queens taken right from full colonies in the height of the laying season.

WINTERING OUT-APIARIES AT HOME, AND MOVING THEM JUST AFTER THE HONEY-FLOW COMMENCES.

I wish to ask a question or two. Brother and I have about 125 colonies of bees, about half in the cellar, and half in Root chaff hives. In the spring we wish to buy 25 colonies, making 150 altogether. For the surplus-honey harvest we wish to divide our apiary, and have 75 colonies in two apiaries, 3 miles apart. Can we run all together in one yard up to within two or three weeks of the honey harvest, and then about May 15th move half of them 3 miles, so as to increase the yield of honey per colony? By having all together, we can save one man's time for nearly two months.

Our folks feel as if GLEANINGS were one of the essentials, as we have been subscribers, off and on, for twelve or more years. It seems only a few days

since I paid our subscription for two years in advance, and one of them is almost up.

We began last spring with 70 colonies, some rather weak, and increased to 125, and in July extracted pretty closely, getting about 3600 lbs. Add to this 600 lbs. of comb, taken later, makes 4200 lbs. of nice honey. We expected to feed, for winter, sugar syrup, as we can sell extracted and comb for 18 to 20 cts. per lb.; but our bees gathered, after July 25th, about 1800 lbs. more honey, enough to winter, which we left in the hives for that purpose.

Rockaway, Ohio, Jan. 18, 1889.

H. F. MOORE.

Friend M., I believe this is exactly the way that C. C. Miller, Boardman, and perhaps many others, are already managing. If your home locality is overstocked, however, your bees would not breed up quite as well if you delay removing them until the honey-yield commences.

CHAPMAN HONEY-PLANT SEED; CAN IT BE OBTAINED OF THE GOVERNMENT?

I saw the notice last spring in GLEANINGS, stating that the Agricultural Department at Washington had obtained seed of the Chapman honey-plant, for distribution. I applied to our representative, and he notified me that he had never heard of such a plant, but said that he had sent my application to the department, since which time I never heard from it. Were any of your readers more fortunate?

POLLEN BEFORE THE BIG STORM.

On the 8th of this month (the day before the big storm) we noticed a few bees come in laden with pollen of a yellow color, and this morning some of mine from chaff hives were flying before 8 o'clock. I fully concur with Dr. Morrison, of Oxford, Pa., that bees are not looked after in this section. Many that went into winter quarters with plenty of stores in the fall may be found dead in the spring.

FERTILE WORKERS, AND HOW TO TELL THEM.

Please tell me how to distinguish a fertile worker from other bees. I should like to know. I had such a colony destroy two Italian queens for me the past summer, in one hive, before I found out what was the matter with them. I then concluded the cheapest way was to sulphurize the colony. The one Italian queen they kept in the hive for 8 days, before I found her dead on the outside.

Duncannon, Pa., Jan. 17, 1889.

A. L. LANE.

Friend L., I can not help you any about procuring seed of the Chapman honey-plant. I opposed the measure of asking the Government to buy friend Chapman's seed, at the National Convention held in Chicago; also at the Michigan State Convention at Saginaw, a year ago. Some of the friends who were in favor of it admitted that the Government Seed Bureau was a big humbug any way; but they gave, as an excuse, that friend Chapman might as well have some of the humbug money as anybody else. They did not state it in just that way, but it amounted to that. Now, the \$2800 that was paid to friend Chapman for his honey-plant seed might almost as well have been thrown into the fire, in my opinion. The seed is very likely stowed away with other old rubbish, and it will probably get too old to germinate before it gets into the hands of beekeepers, if it ever does at all. Another thing, I do not believe that any bee-keeper wants a lot of Chapman honey-plant seed

until he has first tested it by trying a five-cent package; and even after it has been so tested, and the seed was wanted, I am not sure that it could be had of the Government. Perhaps I am a little uncharitable here; but I can not help feeling indignant at this whole proceeding—not only in honey-plants, but seeds for almost all other purposes. There have been a good many complaints just like yours, friend L., that they could not get the seed of the Chapman honey-plant, even after the Government had paid \$2800 for it; and it is not only this kind of seed, but seeds in general are managed a good deal in the same fashion. Our agricultural papers have for years shown it up, and protested that our money should not be wasted in such senseless proceedings, but still it goes on. This is the first time I have publicly spoken about the matter, and perhaps I shall never have occasion to speak of it again.—In regard to your last question, I do not believe that anybody has yet discovered any way of telling a fertile worker from the rest of the bees, other than the way in which the bees behave toward her. You have yourself described how we can know how fertile workers are present. The presence of two or more scattering eggs in the cells, the rearing of drone brood over worker-cells, etc., are some of the tests. For a full description of fertile workers, you had better see the A B C book.

HONEY VINEGAR NOT INFERIOR TO CIDER VINEGAR FOR PICKLING PURPOSES.

I have just read Emily West's letter, and I think I can say something in favor of honey vinegar for pickles. I don't know much about making pickles—only just a little bit, so my letter will not be very long. Last fall I made sweet pickles of green tomatoes, and made piccalilli also, making both the usual way, but using honey vinegar. They were put in the cellar in open stone jars, and are as good now as when first made. I have made tomato pickles with cider vinegar, and had them spoil in a few weeks; but these have given me no trouble whatever. I have not been successful with cucumber pickles until this winter. I always put them into cold vinegar after freshening, fixing only a quart at a time, as I knew they would get a white scum on them, and soon spoil. This fall I freshened nearly two gallons, and scalded them in the vinegar with a little sugar, enough whole cloves to give a spicy taste, and a small lump of alum. They are even better than when first pickled, I think, and the vinegar is as clear and strong as ever. The sugar gives the vinegar something to work on, and so keeps up its strength. The cloves keep the white scum from forming, and the alum hardens the pickles, making them brittle. ALICE FELLOWS.

Broadhead, Wis., Jan. 21, 1889.

HONEY VINEGAR; 10 BARRELS OF IT.

I am very much interested in bee culture (as I should be) since I have lately linked my fortune with those of an apiarian. Last year Mr. Ludden made a barrel of honey vinegar, by way of trial; and all who tried it came for more, consequently this year we have ten barrels on hand. Now, in reply to Emily E. West's article: When I came here I found that a jar of cucumber pickles on which Mr. L. had been experimenting were faring the

same as yours had. Boiling does not destroy the virtue of the vinegar, and perhaps so doing before putting on the pickles would overcome the difficulty. How old was the vinegar you used?

Shelby, Iowa, Jan. 21, 1889.

LULA LUDDEN.

The vinegar we used was white-wine vinegar; but I have been told since that it was not strong enough to make pickles to keep through the summer.

SWEET CLOVER.

I received a copy of GLEANINGS, Jan. 1st, shortly after I had written my last, and noted foot-notes on my article. I am afraid you are a little too (excuse me) enthusiastic about honey-farms of sweet clover. The point here is simply this: that, whatever dry soil will grow sweet clover, will grow alfalfa, or lucerne, and it pays better than clover, even taking the nectar into consideration. JNO. C. SWANER.

Salt Lake City, Utah, Jan. 21, 1889.

Many thanks, friend S., for your caution; but my idea was, that the sweet clover would cover the ground if the seed were simply scattered over it, without any such preparations as are needed for alfalfa; and I think this must be somewhat the case, for sweet clover makes its way through the country at large, while, if I am correct, alfalfa never does. The seed of sweet clover is so cheap that one might throw it broadcast on our unoccupied land and not be much out of pocket, even if it did not amount to much.

BEEES FROM IMPORTED, VERSUS THOSE FROM HOMEBRED STOCK.

Do you consider that imported queens produce better workers than one that has been raised here from several strains, provided they have been kept pure? or, in other words, as long as they show three bands are they just as good honey-gatherers as lately imported ones? J. T. RUSH.

Hesler, Ky.

To the question which you propound, no uniformity of answers may be expected from different ones. We think that stock direct from imported queens, as a general rule, is a little more hardy and vigorous than that produced from queens inbred so many times in our own country. The great tendency with breeders is to run for color, i. e., "nice yellow bees," "four-banded bees," etc. What we want is not color, not bands, so much as bees for business—bees that will produce big crops of honey. Our experience has been rather in favor of the leather-colored Italians as honey-gatherers, and these we generally get from imported mothers. Stock bred from queens reared in this country for several generations is pretty sure to be lighter colored; and this tendency to run to color, as we have already intimated, we are afraid has been at a sacrifice of the real bread-and-butter bees.

A QUESTION OF SETTING CIRCULAR RIP-SAWS.

I am about to use one of your 20-inch rip-saws. The business is new to me, although I am well used to hand-saws. I have an intelligent neighbor who has run sawmills near your home. He says that he sets rip-saws by sawging or hammering. Now, I admit we can get a very even set that way; but it strikes me that the hammering ruptures the

metal, makes it brittle, prevents it holding an edge, and makes it hard to file. I should like your opinion. I have read the A B C, but it doesn't cover this particular point. I like the plan there given best. I am making a saw-table, somewhat under this neighbor's directions.

WM. YOUNG.

Palmyra, Neb., Jan. 18, 1889.

Large heavy saws can be set by hammering, but it does not answer so well for small saws less than $\frac{1}{4}$ inch in thickness. You are right. The hammering, in setting, does rupture, and not unfrequently breaks the teeth. We formerly recommended the Star sawset; but as the Boynton has given so much better satisfaction, we shall recommend it hereafter. Perhaps we should remark, that the Star sets the teeth with a sharp blow. The Boynton accomplishes the same result by simply bending the teeth gently, but perhaps not quite as accurately, as the Star. Either is provided with a gauge, so that any desired set may be used. The Star set broke so many teeth that we were obliged to use something else. Since using the Boynton we have had no trouble with the same grade of saws that formerly broke. Both sets are listed in our catalogue at 75 cts. each.

WHAT MADE THEM DIE?

On Christmas I thought I would take a peep at my bees. I found that one colony had died. They were clustered, and some of them had crawled into the combs and died. There was honey all around them, and I don't think it had been cold enough to freeze them. They were in Root's one-story chaff hive. The hive was packed well, and I can not make out what caused their death; but I could not find any queen. There were two quarts or more of dead bees in the hive. Will some of you tell me what caused their death?

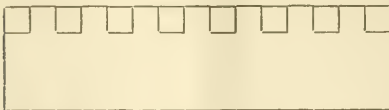
J. W. RUPERT.

Foxburg, Pa., Jan. 30, 1889.

It is difficult to decide just what did cause the death of the colony in question. In the absence of a queen, a colony is more apt to die. They seem to get the idea into their heads that, without a mother in the house, life is not worth living. Bad stores might have been the cause of their death. If so, then their hive ought to show some signs of dysentery.

HOUSE-APIARIES, HEXAGONAL, SQUARE, OR OBLONG.

I expect to build a bee-house this season, and write to ask if you have had any experience with bees in such a house as I propose to build.



I think this arrangement will work, but I desire to get all the information I can, before building. The squares show the hives. The spaces between the hives are 30 inches, from entrance to entrance.

Westminster, S. C., Jan. 14, 1889. R. E. MASON.

Friend M., your plan of a bee-house would work, but we would suggest that one hexagonal in form, or even square, is much better than one oblong, built as you propose making. In either one of the former, the

operator can have the extractor, etc., in the center of the building, and the steps he would be obliged to take are reduced to a minimum. Another thing, bees will find their entrance better in such a structure. We suppose you are aware that house-apia-ries have been discarded by the majority of bee-keepers. You will find their advantages and disadvantages are very well and fully covered in the A B C of Bee Culture.

STRENGTHENING WEAK COLONIES IN WINTER.

Would you advise giving a weak colony a quart or more of bees to strengthen them, or not? Does the Chapman honey-plant grow and do well in this part of Texas? What honey-producing plants or trees will be the most profitable to grow here for honey and fruit, and also just for honey?

ENOCH ANDERSON.

Comanche, Tex., Jan. 11, 1889.

Friend A., it is hard to advise for your locality. If the bees are bunched up in a small cluster, and seem to take no more space than a quart measure, they are probably strong enough. On the first few warm days they will probably expand out enough to make a respectable-looking swarm. Some of the strongest colonies here in the North are so much packed together that you would almost think you could get them into a teacup; but when a warm day comes they will fill the whole hive. If the colony you speak of is weak in reality, then perhaps it would be well for you to give them more bees, preferably from a queenless colony.—We can not tell you whether the Chapman honey-plant would do well in Texas or not; probably it would. You had better consult some bee-keeper in your locality.

CHANGING TO ITALIANS, AND BACK AGAIN TO BLACK BEES; HOW DID IT COME ABOUT?

Friend Root:—I have for a few years been a silent admirer of the Simplicity hive and your bee-literature, and now I feel like standing up and telling you how happy I am to be a member of your A B C class, and to be numbered among the thousands who are so fortunate as to be subscribers to GLEANINGS. Not unlike many other beginners, perhaps, I have had some failures in bee-keeping; but by the use of the Simplicity hive and the aid of the A B C book and GLEANINGS I have secured crops of honey which in quantity and quality astonished my "log-hive" neighbors who are apt to look upon any attempt at intelligent bee-keeping as a mere experiment or humbug.

The honey-season here for 1888 was very good.

I wish to here relate a bit of strange experience with a hive of bees—strange to me at least—on which I hope you will give a little explanation: Of the four queens ordered of you at different times, I succeeded in introducing one nicely. She proved to be a good layer, and soon I noticed my combs were well filled with brood. A little later, and hundreds of young Italians might be seen in the hive. The Italians increased rapidly, while the black bees gradually disappeared, until very few of the latter remained. Thus far I felt truly proud of my success. But soon, to my consternation, I observed that my golden-banded beauties were gradually decreasing in numbers, while the blacks were as sure-

ly on the increase. The result was, that the whole colony were again black bees.

I can now easily account for the presence of those Italians in that hive; but where did the eggs come from to produce this last lot of blacks?

Cisco, Ga., Jan. 21, 1889.

W. A. CAMPBELL.

Friend C., I think you must have left a queen-cell in the hive when you introduced your Italian queen. This queen-cell hatched, and the bees, as they do sometimes, you know, permitted both queens to live together in the hive. In due time the black queen became fertile, and may be both queens supplied the hive with eggs at the same time. Sooner or later, however, unpleasantness arose, and the question had to be decided. I think you will find the proof of what I say, by finding a black queen in your hive, instead of an Italian. I know this *may* be the case, for I have had the same thing happen. I have seen the young queen and the old one for weeks side by side, and have also, in a few cases, known the young queen to become fertile, and to commence laying, without any conflict between the two.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 106.—*What is the earliest date at which you regard it safe, usually, to remove your bees from the cellar, in your locality? In answering this question, make no account of exceptional weather or unusual circumstances of some seasons.*

April 1. MRS. L. HARRISON.

March 10 to 20. DADANT & SON.

About April 1st. GEO. GRIMM.

April 15, or later. C. C. MILLER.

1st to 10th of April. H. R. BOARDMAN.

From the first to the middle of April. L. C. ROOT.

I have had too little experience with cellars to name a date. E. E. HASTY.

From the 15th of April to the 10th of May, according to the season. G. M. DOOLITTLE.

We have made it a rule to get them out as soon after the middle of April as possible.

P. H. ELWOOD.

About April 10th; as soon as pollen can be gathered. I would make the date later were I to change at all. A. J. COOK.

In my locality in Iowa, the first gathering of natural pollen varied from April 6th to 25th. This is as good a guide as I know of, when to remove bees from cellar. O. O. POPPLETON.

Take your bees from their special repository, and place them on their summer stands as soon as you find that those which have been left out are gathering pollen—not before. JAMES HEDDON.

When I read this question, the first answer that came to me was, "None of your business," and I

don't know as I care to give any other; but if I don't, then what? Whoever asked that question ought to ask a few more and then quit. "Make no account of exceptional weather," etc. Well, well! the weather is what we go by here, in removing bees from winter quarters. I think Dr. Miller answered that question pretty well at Columbus. He said, "About two weeks after the right time."

DR. A. B. MASON.

I have nothing to add to the above, that I know of, except that I prefer to have them on their summer stands all winter long.

QUESTION 107.—*If brood-rearing in the spring can be controlled, would you consider it desirable to have your young bees hatch before the weather is warm enough for them to fly?*

No. GEO. GRIMM.

Some, yes. DADANT & SON.

I can never get them any too soon.

MRS. L. HARRISON.

I think not; but I don't think my opinion of much value on that point. C. C. MILLER.

I prefer no breeding till the bees are let out of the cellar about the middle of April. A. J. COOK.

I am ready to take my chances on them after they are hatched; but cold weather before is what troubles me. P. H. ELWOOD.

No. I do not think there is much to be gained, as a rule, in having brood-rearing begin to any extent before March 15th. JAMES A. GREEN.

I have had the best success in getting a good honey crop in seasons when the colonies were being rapidly strengthened by hatching brood when removed from the cellar. DR. A. B. MASON.

Never mind trying to control brood-rearing in the spring. Spend your time in a better cause. I do not consider very early spring breeding desirable. JAMES HEDDON.

I don't wish to see breeding progress in good earnest until about the middle of March; therefore I leave the entrance wide open, and make no special use of division-boards until then.

CHAS. F. MUTH.

My bees that were wintered in chaff hives in Iowa would seldom rear brood until the old bees could fly. I can not say from experience whether early brood-rearing is desirable or not; but I think not. O. O. POPPLETON.

It is a nice point to decide, as to just how early it is profitable to have brood-rearing begin (that is, if we could control it). I am well satisfied that it does not pay to have it begin any earlier than it will be continued uninterruptedly until the bees are set out. H. R. BOARDMAN.

Yes, I think it good to have the hive populous with young bees as early as their condition and instincts will admit of it, although there are seasons in California favoring early breeding so much that, when a cold snap comes, the cluster contracts enough to allow one-third or the half of the brood to perish. In such a case, less haste would have made more speed. R. WILKIN.

Yes, provided the bees are in a perfectly healthy and natural condition—and such do sometimes raise considerable early brood with profit to themselves

Abnormal brood-rearing, which seems to be merely a phase of dysentery, is a thing to be dreaded. I think the young bees so raised likely to perish without profiting the colony very much.

E. E. HASTY.

They should fly soon after they hatch. I have known some cases where Italian queens were introduced to native stocks just before placing the colonies in winter quarters; and when taken out the first of May they were very populous, and nearly all of the bees were Italians; but I think the rule is, that bees winter best which do not breed extensively in winter quarters.

L. C. ROOT.

If brood-rearing could be controlled, I would have the bees wait about it till settled warm weather came, providing that no material loss of old bees would occur before the brood hatched; but as the bees are still liable to do as they please in this matter, as they have done in years past, I do not know that it is of any use for me to express an opinion in the matter.

G. M. DOOLITTLE.

My opinion is, that the above question is a hard one to answer positively. I have had colonies raise brood almost all winter long, when well packed in chaff, and come out stronger in the spring than when they started into winter quarters; and at other times I have had them give excellent crops of honey when no brood was started until some time in March. Some years ago we had a very warm, sunshiny March—so much so that people made gardens, and the bees gathered pollen in large quantities. During that spring I had, as a matter of course, quite a number of weak colonies. Old hands advised me not to undertake to winter them; but they commenced brood-rearing in March, and gathered not only pollen, besides working on meal, but made such large patches of brood that I was jubilant. Well, during the latter part of March or the fore part of April we had a succession of cold storms that cut off the supplies and contracted the cluster, until they could not cover the brood, to such an extent that my prosperous young colonies were killed outright, almost every one of them. In this case, encouraging early brood-rearing was the death of them. Had they been kept in the cellar, or been under heavy chaff packing, where the sun could not reach them, and no meal given them in the spring to incite to early brood-rearing, they might have lived. We should remember, however, that, during most seasons, if they get along well, say as late as the first of April, they will probably be all right. These facts may help us to bear in mind what *may* happen.

QUESTION 108.—If one worker-bee, called A, stings another called B, does A lose its sting, according to your observations? If not, why?

I never observed.

MRS. L. HARRISON.

No. I don't know why.

GEO. GRIMM.

According to my observation, no. A is careful, and stings where the tissue is too frail to hold the sting.

A. J. COOK.

I have seen but one bee sting another. A queen was stung by a worker, and died immediately. The sting was left in the queen.

DR. A. B. MASON.

Not usually, because the sting is not in very deep.

DADANT & SON.

My observation is, that the bee does not lose its sting in the above case. It seems to be able to withdraw the sting.

L. C. ROOT.

If A stings B in the soft part of the abdomen, A is not apt to lose her sting; if in the breast or back, she will lose it generally.

C. F. MUTH.

One bee does not lose its sting when using it as a weapon upon another bee, because it is sufficiently strong to do the work without being injured.

H. R. BOARDMAN.

Sometimes, but generally not—very rarely, in fact. I suspect the sting is thrust into one of the breathing-holes, from which it can easily be withdrawn.

C. C. MILLER.

I never knew a bee to lose its sting by stinging another bee. I think the sting can always be withdrawn from any thing not more solid than the body of a bee.

R. WILKIN.

I have not noticed that they lose their stings. I have not investigated the matter, but have concluded the parts between the segments are soft, so that the sting may be withdrawn.

P. H. ELWOOD.

I do not know, but I guess not. Professor Cook will tell us about that. I do not care any thing about it. It is much further from apicultural dollars and cents than many other questions which I do not understand, but desire to.

JAMES HEDDON.

I have seen them sting and kill, without losing the sting; but I have seen some trying to pull away from the one stung, without succeeding. I think it depends in what part they sting, and they seem to know it, as may be observed when they are trying to sting each other.

PAUL L. VIALON.

He does not, generally, I believe. The power required to tear the muscles of the sting loose is less than the power required to lift bee B and pull him around. Even when the sting takes a firm hold of something solid, bee A can get it out by whirling around with a corkscrew rotation.

E. E. HASTY.

No. Because the sting does not penetrate deep enough so that the barbs catch and hold, as they do when thrust deeply into the flesh of an animal. I have frequently been stung so lightly myself, that the bee took its sting with it, after twisting around a little to withdraw the sting.

G. M. DOOLITTLE.

I never knew a bee to lose its sting in stinging another. I presume I have seen many thousands of bees that had been killed in this way, but I never saw a sting in one, pulled out from the body of another. I suppose this is because the sting is inserted between the horny plates of the body, which are too hard and close-grained for the barbs of the sting to catch on, while the tissues between are too soft and yielding to hold it.

JAMES A. GREEN.

Why, friends, I am surprised at you. Not one of the whole number, unless it be friend Green in the last item, has mentioned or even suggested cases where say half a swarm of bees are stung to death in a couple of hours. In fact, I have known a nucleus, containing less than a quart of bees, to sting to death an absconding swarm of two quarts or more, that tried to get into their hive, and the whole was done during a

few hours in the afternoon. Now, in this case I do not think a single bee in the whole nucleus lost a sting. The dead bees that covered the alighting-board and partly filled the hive were all blacks, and I do not remember of finding a single Italian among the mass of dead ones. In such cases they certainly do not lose their stings nor receive any harm. I have, however, seen bees, when trying to sting a strange queen, sting each other in such a way as to leave the sting fast in the dead bee. In such a case I can not see how the unscrewing operation can be put in practice at all, for the dead bee has not weight enough, and, of course, does not cling to anything, so that the one that stung him has to lug him around or loosen his sting as best he can.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all questions, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

BEES WORKING IN JANUARY.

MY bees were busy at work, Jan. 23, 24, and 25, working on the hickory stumps where clearing is being done on my father's farm. But since that it has been very cold. I do not mean the thermometer has been 40° below zero, for it has been down to only 8 above zero. My bees are in a splendid condition.

Loring, Kansas, Jan. 27, 1889. P. C. CHADWICK.

FROM 5 TO 21, AND 1700 LBS. OF HONEY.

I commenced last spring with five colonies of Italians, and increased to 21 during the season, and got 1700 lbs. of honey. I have about 40 gallons of candied honey on hand now.

A. THAMES.

Blum, Texas, Jan. 2, 1889.

TOWARD WHICH POINT OF THE COMPASS SHOULD THE HIVES FACE?

What side do you prefer for the bees to fly? I think to the east is the best, winter and summer?

Deshler, O., Dec. 3, 1888.

T. OBERHITNER.

[We have for years tried hives with their entrances facing toward the different points of the compass; and, take it all through, for a whole year, the difference is so slight that I do not think it material.]

TO CLEAN TIN HONEY-CANS.

What is the best way to clean last year's tin honey-cans that are a little rusty inside, for honey next year?

P. MULLEN.

Green Isle, Minn., Jan. 14, 1889.

[I do not know any better way to clean honey-cans, where the opening is too small for the hand to go inside, than to put in some coarse sand, and shake it about until it scours off the rust. If you can get your hand through the opening, take some sand on a cloth, and scour it bright.]

CARBOLIC ACID VS. SMOKE, FOR INTIMIDATING BEES, ETC.

I don't see any thing in your journal, about the carbolie spray. I have used it, and find it very successful. I never use a smoker now (and I never did smoke), so I am not asking for one. I find the spray the best quieter, and quickest for manipulating, and it keeps bees healthy.

J. DANN.

Wisbech, Scotland, Jan. 15, 1889.

[We have tried the carbolie-acid spray in lieu of smoke. It will answer tolerably well if the smoker

does not happen to be handy; but for real execution, smoke is far ahead. We have tried a great many substitutes; but every time we have gone back, fully satisfied that smoke is better.]

WHICH GOES OUT WITH THE SWARM?

When a swarm of bees comes out naturally, does the virgin queen come out, or does the old one come out? Which one leaves the old home or hive?

BEE-KEEPER.

[The old queen leaves with the first swarm of the season, and this rule has but few exceptions; in fact, with the Italians, a great part of the time the old queen leaves before the young one is hatched, and sometimes even before a queen-cell is built, so you see it can not possibly be the young queen, when there is not any young queen at all in the hive.]

EIGHT OR TEN FRAME HIVES—WHICH?

In handling my bees last year it seemed to me that 10 frames in the Simplicity hive were too many, as you recommend in the A B C book, both in the brood-chamber and in top story, for the production of honey. Do you still claim 10 frames as the right number in the Simplicity hive?

EDWIN HOLTkamp.

Bellville, Tex., Jan. 22, 1889.

[An eight-frame hive may be better for the production of comb honey; but for a general-purpose hive, and particularly one for extracting, we should prefer one with ten frames.]

HONEY-JUMBLES; SOUTH MISSOURI.

Will you please give a recipe for making honey-jumbles? Can you or any of your readers give me any knowledge of the honey resources of South Missouri?

S. G. PALMER.

Tobias, Neb., Jan. 4, 1889.

[The nicest honey-jumbles are made only by appropriate machinery, such as is to be found in large bakeries—at least, that is my impression.—The only way to find out about the honey resources of Southern Missouri, or any other particular locality, that I know of, is to look over the reports in the back volumes of the different bee-journals. If you contemplate moving, it might pay you to purchase all the back volumes you can find, and hunt them over. Better still, go on an excursion-trip and make inquiries.]

REPORTS DISCOURAGING.

NO LOSS DURING WINTER, BUT DISCOURAGING JUST THE SAME.

MY report for the last two years has been discouraging. I feed more syrup than I get honey; but I am not discouraged. I am going to hold on a while longer. I have been in the business four years. I have now 24 stands in good condition. I take GLEANINGS, and have your A B C book. I use your chaff hives, and I have never lost a colony yet.

Horatio, Ohio, Jan. 28, 1889. NOAH THOMAS.

NOT PAID EXPENSES; WHY THE BEES DIED.

My bees have not paid expenses for the last two years, and I am getting tired of stuffing bees and getting no stuffing. I was not at home in the fall when they should have been fed, and some of them have died with cramp in the stomach. Will you please say whether you know, by experience or otherwise, the effect of beet-sugar candy, shortened with flour, for this fatal disease? I gave them all a dose of that kind of medicine a few days ago, to see how it would work.

M. V. EWBANK.

Wheatland, Ind., Jan. 29, 1889.

Beet sugar is not equal to cane sugar for winter food—at least, the editor of the

British Bee Journal so thinks. The addition of flour to the bee-candy as a *winter* food is a little risky, even with the best granulated sugar. We recommend the admixture of flour, only for the purpose of stimulating brood-rearing in spring; but it is hardly to be advised in the dead of winter.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows; viz.: *Sheer Off, Silver Keys, The Giant-Killer*; or, *The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room*. We have also *Our Homes, Part I, and Our Homes, Part II*. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

CONDUCTED BY ERNEST R. ROOT.

WE haven't received many drawings from the little folks yet. Haven't we got some little artists among our number who write for this department? Oh, yes! we are sure we have. Remember to make the drawing represent something useful, and remember, also, to make the picture without the aid of papa or mamma.

PA'S BEES.

My pa has 30 swarms of bees. They swarmed six times last summer. He has 11 colonies in chaff, on summer stands, and 19 in cellar. He carried them in his arms. He has the entrance the whole width of the hive, and a top entrance. He put the bees in the last of November.

WILBER L. BOYD.

North Monroe, Maine.

HOW PAPA WATERS HIS BEES.

Papa has 28 hives of bees. He saw them gathering pollen the middle of January this year. They got it from alder-blossoms. Papa had one swarm of bees last year on the last day of March, and six more the next week. I will tell you how papa waters his bees. He lets the water drip slowly from a barrel on a plank that slants downward.

Cuthbert, Ga.

JOE DUGGAN, age 9.

ABOUT A PIG.

Last winter my grandma gave me a pig. I fed it lots of corn and milk, and it got very fat. I told pa if he would get me a little wagon he might have the pig, and so he got me the wagon, which cost \$2.25, and then something got the matter with the pig's throat, and about two months ago it died. I got my pay for it any way.

ERNEST BALDWIN.

Stewardson, Ill.

PACKING-BOXES.

My father winters his bees on their summer stands. He gets a box that is larger than the hive. Between the box and the hive we fill with chaff. For the roof we use siding, and the whole amount cost 25 cents besides the work. We never lost any bees while we wintered them that way, and they seem to do first rate.

HANS C. NELSON, age 14.

Barnes, Kan.

NOT A CARP-POND, BUT A TROUT-POND, AND ONE THAT TWO BOYS MADE.

My pa hasn't any bees, but he got two colonies three years ago; and when winter came he put them in a little underground cellar out of doors. It got so damp in the cellar that the bees died. He has a sawmill, and has a lot of saws, and can saw frames and lumber for hives. He is going to get some bees by and by. He is going to get some carp also. We have a good place for a pond. My brother and I made a pond, and caught some trout and put them in it. They were from 2 to 12 inches long. They would swim around and jump up for flies. One died because the water was too warm.

ERNEST SEATON, age 14.

Ellensburg, Wash. Ter.

FOUL BROOD AND CHESHIRE'S REMEDY.

Five years ago papa had 46 colonies, and they all got foul brood. Papa tried Mr. Cheshire's remedy of "Calvert No. 1," phenol, early, on one, and then built them up to a full colony. They cast three swarms that summer. Papa hived the new swarms in clean hives, and buried the combs of the parent stand. The past season was a very poor one. We got hardly honey enough to pay for the work. Mamma hived all the swarms with the weak ones. She caged the queen that came out with the swarms, and let her run back into her own hive.

Coldwater, Mich.

IDA CARLS, age 10.

You say in your letter, friend Ida, that your papa tried Mr. Cheshire's remedy. Although you intimate that the bees were cured, you do not say so in so many words. As you are perhaps aware, this remedy was a failure with us. So far as we can observe from the letters of our correspondents, it is not very apt to be a success in the hands of any one. We should be glad to know whether the parent colony stayed cured.

WANTS A LITTLE ENGINE; PAPA'S FRAME-LIFTERS.

Papa has 8 colonies of bees, mostly Italians, in Simplicity hives. He is wintering them on their summer stands. He put the hives in boxes, and packed them with leaves and chaff. He makes his own bee-fixtures. He has a foot-power saw, but he wants a little engine very bad. I have made sections and frames alone, and they looked as well as papa's.

Papa made two hooks to take out frames with. The ring is large enough to put one or two fingers into; he puts it under the frames and lifts them out. I thought if I wrote about it you might send me a book. This is a picture of it.



Grafton, Vt.

GEORGE E. WALKER, age 11.

If your papa has many hives to make on a foot-power buzz-saw, I do not much wonder that "he wants a little engine very bad." See what we say in regard to foot-power versus steam, on page 91 of our last issue.

Your papa's frame-hook will answer the purpose, but we should very much prefer to use the fingers. We have sometimes used such an arrangement to "heft" the frame—that is, to find out its weight in mid-winter, when the day is warm enough to warrant disturbing the cluster. In lifting up the chaff cushion, burlap, etc., we find that it saves a little time to use such an implement. A little experience in lifting up at one end will tell about how much stores there is in each frame—consequently how much there is in a hive.

HOW PAPA HIVES SWARMS; NO HONEY FROM WILD CUCUMBER.

My father hives bees in this way: The bees generally alight in a low place; then he gets the table and puts the bee-hive upon that. He brushes them down into the hive, then covers them up quickly, and lets them stand until after sundown; then he moves them to their permanent places. Last summer we had a new stand of bees, and their combs broke down twice. Papa had quite a time changing them into a new hive, in order to save them. He makes his own hives. We got only a few pounds of surplus this year. Papa sends to you for his supplies. The wild cucumber seems to be a honey-plant in some places, but it is not so here, for we raise them every year. It seems queer that the bees never go near it, as it is so fragrant. I like to hear papa read your travels to California.

Waco, Neb., Jan. 26, 1889. EVERETT PHIERY.

MY BROTHER'S BEES, AND HOW WE HIVE THEM.

My brother takes GLEANINGS. He had 9 stands of bees, and they increased to 14. It was a very poor season for honey. They made enough for themselves, and we got but a few pounds of surplus honey. My brother left them out in the orchard, where they were all summer. He says they are in good order. The way we hive them is this: When they are up in the tree, so we can not reach them very well, we saw the limb off and shake them under a sheet, and thump on the top of the hive. They always go in. Once when the folks were all away but my two sisters (one of them is fourteen and the other is but nine) and two visitors, we got a looking-glass and settled the bees. I got things ready for my brother and he came and hived them. He took a bucket and shook them into it. He covered them up with a cloth, and put them under a sheet, and covered them up until they went into the hive.

JOSEPH MILLER.

Ege, Ind., Jan. 23, 1889.

GOATS; WHITE RATS, BEES, AND OTHER PETS.

I have been reading this morning in GLEANINGS the little folks' letters, which put me in the notion to write. We have 25 goats, and one of them is just as pretty as it can be. It is just 24 hours old. We have two kinds of goats, the common stock goat, and the Angora goat. I think the Angora goat is the prettiest. It is white, with long curly wool. The common stock goat is black and white spotted, and it has short wool. Mr. Root, did you ever see a white mouse? I never did, but Mr. Littleton, the doctor who put mamma's teeth up, is going to bring us some; and if you want any white rats I will try to send you some. Grandpa has 24 bee-hives, and they are doing well so far. I have one

hive of my own, but grandpa tends to it. I live with him. Ma keeps house for him, as my papa is dead. He died last April. He was sick two years. I have two brothers—a big brother and a little one. I live at Albany Switch, a little place between Henry and Paris. I go to Henry to school, and board from home. Grandpa takes GLEANINGS, and it is always a welcome visitor. I have a pet cat named Veda. When I call, it will come running as fast as it can. I like to go to school. My teacher's name is Miss Lillian Walters. She is tight, but still I don't think she is any too tight. If we talk one day we have to write one hundred words; and if we talk two days we have to write two hundred; and if we talk three days, we have to write three hundred, and so on.

LOUNETTE CARTER.

Henry, Tenn., Jan. 19, 1889.

Your letter is very interesting, friend Lounette. We thank you for your very kind offer; but as we have so many of the common kind of rats and mice, we shall hardly want to accept of their white relatives. We have seen them, and they look very pretty in their cage.

A HOME WITHOUT A PAPA.

In the spring of 1887 I wrote to you that, the summer before, we built a large hay and cattle barn, and a creamery near the well. We had been renting the fields for four years, but that year papa hired a man and ran it again himself. Papa's health seemed much better. In the fall he plowed some fifty acres with the riding-plow, which he hadn't been able to work in the field for eleven years. It seemed nice to have him well enough to be out around. He taught me much about farming; but on Jan. 6, 1888, he took a heavy cold and kept getting worse, and spitting blood every day, and April 1st he died, which leaves mamma alone with four children, and I am the oldest. We had a sale, and sold off all but what we needed for convenience. We kept two swarms of bees. They were in chaff hives. We have a great number of hives that we did not sell at the sale. Mamma says that, as long as she lives on the farm, she will keep bees. In 1888 we had to rent the farm again to four of our neighbors. I went to school six months—two in the spring and four in the fall. In harvest and haying I worked for 50 cts. a day. I earned \$21, which bought me all that I needed. This year mamma rented all the farm to our nearest neighbor. I think it is nicer than to have so many different men working the farm, because they seed down their own farm and run down the rented one.

ARTHUR J. BOSSEMAYER, age 13.

Dixon, Ill., Jan. 29, 1889.

PA'S SOLAR WAX-EXTRACTOR.

I have long wanted to get the book, Ten Nights in a Bar-room, so I am going to try to get it. I will send you a drawing of pa's wax-extractor. It is a box about a foot and a half long, a foot wide, and about ten inches deep, with a double cover. The upper cover is lined with tin; the lower cover is glass, both hinged to the box. Inside there is a screen that rests on small cleats in which you put the comb. Below this is a small dish which catches the wax. When the cover is up in a bright sunny day the heat will reflect from the tin through the glass, and melt the comb very rapidly.

Pa has 20 swarms of bees, packed in the Wolverine chaff hive, which he makes to sell. He wintered 17 colonies without loss last year. Mamma's name was Root, and she has an uncle whose name is Hezekiah Root. He lives about five miles from G. M. Doolittle. His business is bee-keeping. Grandma Root lives with us. I have a brother by the name of Huber. He is three years old. I am eleven years old.

RUEL H. RAWSON.

Quincy, Mich.

Your drawing, friend Ruel, is very good, and represents the idea very nicely; but as it is very similar to the engraving in our price list, with the exception of one or two details, it will hardly pay to have it engraved here, for everybody knows how that is made. We do not wish to carry the idea that you copied your picture from the engraving, for we are sure you did not, because of some little details. If the little folks will read Ruel's letter and compare it with the cut of our solar wax-extractor, they will get an excellent idea of the same. We suppose you know that the wax rendered by the heat of sun is yellower and nicer than that rendered by any other means.

A PAIR OF OLD SHOES.

BY EUGENE SECOR.

The daintiest white leather that ever grew
On the back of an innocent mountain kid,
With laces once red, and tassels once blue,
Make the shoes in which baby's pink toes were hid.
'Tis true, that these "booties" are out at the toe,
And slightly the worse for wear at the heel;
But new ones never can interest me so,
Nor bring to my heart such innocent weal.

Each wrinkle is prized by the mother-herd,
And reminds her of smiles on her darling's face;
Each stain is more precious than work of art,
For baby's sweet mouth these lines did trace.

For the few happy months while these have been worn,
My life has been one perpetual hymn;
Since she came to earth by kind angels borne,
My cup of joy has been full to the brim.

While these were worn, the first pearly teeth
Brought as pleasant relief as did Noah's white dove;
When the first steps were taken, these shoes were beneath
The precious load of sweetness and love.

With fond recollection I often recall
Her innocent prattle when perched on my knee,
With language so simple, yet puzzling withal,
She charmingly tried to entertain me.

As these little old shoes are tucked away,
And tenderly kept with scrupulous care,
We think of the toddling wearer, and pray
That those feet may be guided from every snare.

We pray that the Shepherd may guard this lamb,
And shelter her always in his safe fold;
May her life, like these shoes, prove not a sham,
And her worth like these, need not to be told.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

STEPPING HEAVENWARD.

I COME to you with two new candidates for the Tobacco Column. I do not keep bees at present, but I go to Carlstadt every week to manage a farmer neighbor's bees for him. He has no smoker, so I told him about your offer. He thought it over awhile, and then said, "Friend H., I will try it right off, as I have smoked and chewed tobacco for the past eight years or so. I will also give up drinking beer, to which I have been addicted for quite a few years. If I start again, I promise to pay you all it costs."

Friend Root, I have a show to see that he keeps his promise, because I am out there every week. He is a farmer, and well to do. If he breaks his promise I will see that you get your pay.

I am the other candidate. I have given up smoking the pipe and cigar, to which I have clung about seven years. I do not need a smoker, as I don't keep bees at present; and I also have a Bingham; but I only want it to show to friends, and tell them about your offer, and see how long our promise lasts.

FRED HOLTKE.

Hoboken, N. J.

Friend H., may God bless you both in your undertaking. Most gladly do we send you the smoker to show your neighbors, and to exhibit as an object-lesson in gathering new recruits. Our readers will please notice that your friend accepted your suggestion as something in the right way, for he voluntarily, of his own free will, put his beer-drinking with the tobacco, and throws them both overboard. You may think that the heading which I put to your kind letter is a little extravagant; but, in my opinion, leaving off habits which you know to be bad is one of the surest steps toward righteousness that a man can take.

TOBACCO MONEY TURNED INTO A LIBRARY OF 300 VOLUMES.

Let me give your readers who are leaving off the tobacco habit an idea that occurred to me when I laid aside the weed nearly eighteen years ago. At that time I resolved to invest in good books the same amount of money, yearly, that I would have spent for tobacco had I continued its use. The result is truly surprising. I have now a library of nearly 300 volumes, to which I am still making frequent additions. I have often wondered if our worthy editor ever was a slave to the weed; and if a personal knowledge of the filthiness of the habit, combined with his good will to all, prompted his liberality to those who promise "to do so no more."

Mingo, O.

I. M. MARTIN.

Why, friend M., it seems as if there were a providence in having your bright cheering letter follow right along in the wake of the one above it. Who shall say there are not plain evidences of the hand of God in this Tobacco Column? May God bless you for the example which you have set before us all. No, dear friend, I never used tobacco. But there is no credit due me at all for *not* using it. It did not happen to be in the line of my temptations. Your question reminds me of a jovial friend of mine who has a comic way of declining, when a cigar is offered him. He replies something like this: "No, sir. I tell lies and drink whisky, but I never use tobacco." The laugh that this creates lets him out with a good grace. Now, I do not want to have you think that I drink whisky, or that I ever did; and I am trying very hard not to tell lies, even little ones, either by word or by act.

OLD TOBACCO MONEY TURNED INTO CHRISTMAS PRESENTS.

I am very thankful to you for inspiring me to stop using tobacco; for with the money thus carefully saved I have bought for my little girl such Christmas gifts as not many children in this neighborhood can enjoy; and, besides, I feel much cleaner and better since I no longer handle the accursed weed.

ED E. SMITH.

Carpenter, Ill., Dec. 23, 1888.

Why, friend Smith, yours too is inspiring. The money that you have been using for indulgence in a filthy habit has been transformed into useful and wholesome gifts for your little girl. Another thing, that same little girl (and may God bless her) can now climb up into your lap and give you a kiss, without any misgivings that your mouth may not be clean enough for her innocent little face to approach.

A GOOD RESOLVE AT THE END OF THE YEAR.

I shall soon be 26 years of age. I am a single man. I commenced to take GLEANINGS less than a year ago. I have purchased 11 colonies of bees, and expect to keep bees for a livelihood henceforth; but the worst of all, I have used tobacco for the last five years. I did not chew, but smoked. At last I let decency get uppermost, and on the last day of 1888 I bid adieu to tobacco in every form. So far I find it no trouble to do without, and, by the grace of God, I will never use it again. I have a brother, who is 2 years younger than I, who used the weed for 12 years in every conceivable form, and was a slave to it. Two years ago he quit it, and has never touched it since. He is going to the State University at Morgantown. We were the only ones, out of a family of 4, that used the weed. I do not charge a smoker for my little self-will, but only ask that I may have grace sufficient to enable me to overcome my bad habits.

S. RAY HOLBERT.

Watson, W. Va., Feb. 6, 1889.

BREAKING THE HABIT THROUGH GOD'S HELP.

I tried to quit using the weed in my own strength, but I failed, afterwards I tried again and prayed to God to help me and now I neither smoke or chew, or drink liquor, nor have I any desire or appetite for either.

A. W. MAKER.

Urbana, Ill., Jan. 5, 1889.

MYSELF AND MY NEIGHBORS.

The heavens declare the glory of God, and the firmament sheweth his handiwork.—Ps. 19: 1.

A NOON-DAY PRAYER-MEETING IN THE CITY OF LOS ANGELES, CAL.

MONDAY it was my pleasure to attend a noon-day service in the busiest part of the city. I got in early (did you ever know, dear friends, that a special blessing often attends those who are first on hand in God's house?) and was pleased to receive a kindly welcome, with outstretched hands. And before the meeting opened we early comers had a most pleasant little family talk. I am told that a man and his wife keep up these meetings, at their own expense. God has blessed them, and their income is sufficient so they can afford to do this work in this busy city, without pay. Yet, dear friends, it is *not* without pay, as the genial light and love in their faces attest. I was obliged to leave before the service closed, but a brother followed me to the door, and gave me some tracts, a copy of which I give below, in small type.

PROFIT AND LOSS!

IF I GET SAVED I SHALL

LOSE	GAIN
Sinful pleasure.	Holy joy.
Wicked associations.	Divine fellowship.
Ill-gotten gain.	Treasures in heaven.
Worldly wisdom.	Wisdom from above.
Heart condemnation.	No condemnation.
Doubts and fears.	Peace in believing.
Friendship of the world.	Friendship of God.
Dread of the future.	Blessed hope.
Everlasting punishment.	Eternal life.

THESE ARE SCRIPTURAL FACTS!

Since I may die any moment, I had better reckon the loss and gain just now.

"What shall it profit a man if he gain the whole world and lose his own soul?"

THE RESULT OF CHOICE IS ETERNAL!

COME TO THE GOSPEL MEETINGS

at the

NADEAU' BASEMENT.

Corner First and Spring Street.

Noon prayer-meeting from 12 to 1 daily.

Salvation meeting every night.

Sabbath services 10, 3 and 7 p. m.

To Huber.—Dec. 11—I'apa is now away up in the clouds—in the clouds resting on the Rocky Mountains. They are a great bother just now, for I wanted to see the valley below, but I can't see it at all, nor the hills above. May be, however, we shall soon get up to be above the clouds. We are now just about half a mile high; but in four hours more we shall be over a mile and a quarter *right straight up*. The railroad book tells us just how many feet high we are every time we stop.

While we are waiting to get out of the clouds, I want to tell you of something else. Last Saturday we were on Long Beach. It is called so because it is a good many miles long, and the ocean waves have washed it as clean as a stone sidewalk. The water, as it comes rushing and roaring up in great waves, is full of bright sand that shines almost like silver. Well, every wave drops some of this sand; and, what is very funny, you can walk on this clean sand with your best slippers, and not soil them a bit. My friend even drove all over the beach with three of us in the buggy, and neither the wheels nor the horses' hoofs sank a bit;

and then he drove right out among the splashing and roaring waves, until I begged him to go back. While we were there, a lot of boys and girls came down with bathing-suits on, and they just splashed right out into the ocean. They would just stand still and let a big wave knock them over, and one little girl who had a very pretty bathing-suit and bathing-hat just sat down until a big wave came up, then she tipped over back, and all we could see of her was her heels kicking about as they stuck out into the air, from the crest of a foaming wave. When she came out she looked as rosy as could be, and I saw her next day at Sunday-school. My friends wanted me to go in, but I think I like the *warm springs* best, especially in *winter time*.

Hello! the old engine has been puffing and puffing, and now the wheels have slipped so much it is standing still. We are above the clouds, and they lie below us like a great ocean. Here we can see the pine-trees on the opposite side of the clouds, so it is now like a great lake. A boy in the next seat declares it is a lake. Now we see little "puddles" of clouds settled in the low spots or hollows between the hills.

Later.—Our old locomotive has had to give it up—it is too hard climbing. The passengers are all out in the moonlight enjoying themselves on the mountains. I don't know what they expect to do.—*Later.*—They telegraphed for a "younger" locomotive (the other was an old one), and now we are just making the gravel fly as we climb up.

Dec. 12.—We are over the mountain, but still 4500 feet high. On my homeward trip I have decided to try a cheaper way of travel. I started in the ordinary coaches; and by sleeping in my seat I have saved \$3.50 per day thus far. I slept pretty well, and, were it not that I should come before my friends looking worn out, I think I should keep it up clear home. Last night I took a sleeper, \$2.00, providing I got up at 6 o'clock, which, of course, I should do any way. A nice clean bed, where I could stretch my limbs at full length, was a luxury after a night in the seats. Reader, did you ever thank God for a clean soft bed, with plenty of room? If not, do so now, and thank him that it doesn't cost \$2.00 a night.

This morning, while the passengers were loudly complaining of the poorness of a breakfast (here at Battle Mountain) that cost them 75 cts. each, I enjoyed a most delicious repast here in the car at a cost of *thirteen cents*. Shall I give you the bill of fare? A *huge* but delicious California pear, 5 cts.; crackers and cheese, 5 cts.; home-dried figs, 3 cts. The crackers and cheese were in a large paper bag, set in my open sachel, placed in the seat beside me, so I could, by holding my head over it, avoid unsightly crumbs on my seat or person. In fact, I finished my breakfast before daylight. The fruit I got of boys at the stations where the cars stop. Never buy fruit on the cars. One train-boy wanted 25 cts. for *three apples*, and was abusive because I told my neighbor that, in Ohio, we could get a *bushel* for 25 cts. I did not mean the boy should hear me. There is certainly a great

wrong in this matter of "daily bread" in traveling. When I first arrived at Los Angeles it was 11 o'clock at night, and raining hard. The hotel right at the station, and in which the Southern Pacific have located their ticket-offices and waiting-rooms, charged me \$1.75 for lodging and breakfast, neither of which was first class. A few days later I had lodging and breakfast at the oldest hotel in the city, with a pretty room, lighted with gas, and all accommodations to match, and yet the charge was only 75 cts. *without the dollar*. The extra dollar I paid was to support a gilded whisky-shop; and my friend, the man who sells liquors, may be *expected* to defraud and swindle, for he acknowledges himself devoid of conscience by the act of liquor-selling. Is it not time for good people to refuse to stop at any hotel keeping a bar? At the one mentioned, a glittering display of liquors occupies one whole side of the room for the reception of guests.

In traveling in California I have felt much better to drink no water at all, not even tea and coffee. The luscious fruit, to be had in such profusion at every season, furnishes all that can be desired to allay thirst.

Noon.—Since crossing the Rockies we find the ground and still pieces of water frozen over, and the beautiful gardens have given place to winter; but until now we have seen no snow. Strange to tell, while there isn't a particle of snow here, right over a little way, across a sharply defined line, are mountains and highlands perfectly white with snow. I have thought for half an hour we must run into the snow soon, but it still stays just about so far ahead of us. Well, I have found out why it is winter in some spots and not in others. The white mountains are the highest; and here at Wells the snow-line is sharply defined. The snow comes down just so far and no further; in fact, a farmer might plow up to where the snow commenced.

Near the State line between Nevada and Utah we see miles upon miles of a sort of fence, to prevent snow from drifting on the track. It is simply a sort of board fence leaning away from the track. They are used only where the track is lower than the ground. Sometimes they are on one side of the track and sometimes on the other, though I can't say why. At some points immense sheds, going clear over the track, and inclosing it like a tunnel, are put up. These must have cost an immense sum, even though they are evidently made of cheap lumber.

Another little mountain is white with snow, while a great big one is entirely bare. Both are close by, but the white one is just a *little* beyond. Now, as we ran up by them the white one proved to be *miles* away, and ever so much the higher; yet when I first saw them, had anybody told me the snow-covered one was the larger, but miles away, I should have called it ridiculous. Snow capping is a pretty good indication of height, I have often been told, for no one can tell by appearances.

Six o'clock, and now the monotony of the sandy old desert is enlivened by the advent

of Salt Lake itself; and it is so accommodat-ing as to come right up close to the car win-dow. We are to ride along its margin for 3 hours, for it is about 90 miles long and 30 or 40 wide. It is so heavily saturated with chemicals, principally common salt, that no fish has ever been found to live in it, nor, in fact, any kind of animal life. One of the passengers said it was reported that two pails of water will make one pail of salt; but this is, of course, an exaggeration, as the water of Salt Lake is but 24 per cent salt. Bathers say it is almost impossible to keep under water, as it is so dense. After the bath you must be rinsed in pure water.

Dec. 13.—When I first arrived in Salt Lake City I did not at once get hold of the bee-men, and began to feel almost homesick; but when I hunted up one or two, and real-ly let them know that A. I. Root was "here," it has resulted as many times be-fore, and I have had a wonderfully pleasant time. In this region, where irrigation has to be depended on for every thing, they get good yields of beautiful honey nearly every season. The story of its source is really wonderful. Just listen: Much of the ground here is so strongly alkaline that nothing can be made to grow on it; in fact, the grass and whole surface of the ground is white with the alkali. I said *nothing* would grow; but there is one exception to the rule. *Sweet clover* will grow rank and strong, and the farmers have actually been sowing it for years, and plowing it under to get rid of the "saleratus" as they call it. This has scattered the sweet clover far and wide, and this is what gives them their beautiful honey, with a flavor that is exqui-site to me, and, at the same time, unmis-takably sweet clover. This plant is among the very few that will live through the long dry season.

The hives used here are the Kidder and crosswise L., mostly; but one friend, Mr. George Woodmanse, is succeeding beau-tifully with the new Heddon hive. He makes them himself, however, and he is a remark-ably fine mechanic. The sample hive sent him by the inventor was not as accurately made as his own.

Dec. 14.—Although it rains, I have had the pleasure this morning of seeing a snow-storm on the mountains while it rained in the valley. How kind and friendly every-body seems! It was some time before I found any of the bee-men in Salt Lake, and, as I have just said, I began to get a little homesick. Mr. Swaner we found putting up a stovepipe—at least, that was what was told us. We sent word for him to finish his job and then come out in the api-ary. When introduced to A. I. Root he said he wasn't going to be mad about the stove-pipe a bit longer, and he was now very glad he didn't *swear* when it bothered him. We found Mr. Tauffer laying a stone wall for a cellar; but he too dropped his tools, got leave to lay off, and we then went for all the rest of the bee-men. We got to friend Woodmanse's just at supper time; and when I mildly protested because they commenced to make a change in their sup-per arrangements he replied, "Please don't

be anxious; we don't have A. I. Root here every day." When his mother asked me to give thanks, I tell you I got over being homesick entirely. Now, please don't feel hurt, dear friends, when I say it has been a great privilege, during this visit, to hear a blessing asked at the table. If no one else is near to ask it, I am glad to do it in my own way and after my own fashion. I like to thank God for our daily food, and I like to ask him to let his blessing rest on every household where I am entertained; and I like to ask it *out loud* too. Just a simple ac-knowledgment to the great Creator of the universe, it seems to me, can offend no one.

Well, during this visit it is not the people only who have been friendly, but the great sun, the clouds, and the mountains—yes, the winds and the rain too, seemed pleased to see me. I got interested in the clouds and mountains in New Mexico, you remember. Well, they got up a cloudburst for my entertainment. Then at Glendale the sun and rain seemed to have planned together to get up that beautiful rainbow when I was hunting that Methodist Sunday-school. Well, this morning, after I got on the cars, and was admiring the snowstorm on the mountains, the old sun seemed to say:

"I wonder if I can't lend a hand so as to please brother Root;" and in a twinkling he looked through a rift in the clouds and illumined the snowstorm, and made the mountains glitter like frosted silver; then, by way of contrast, he shone on the grass in the valley, and then skipped to the other side of the car and made Provo Lake shine so like molten silver that I almost jumped from my seat in astonishment and surprise. This is a most beautiful fresh-water lake of perhaps half the size of Salt Lake. Now, to go back, did any photographer or artist ever "take" a mountain with the sun shining through the clouds, during a snowstorm?

I have not seen a snowflake (close by) since I left home; but just now the cars have taken a turn and started through a pass in the mountains. As soon as we got partly in, I knew of another reason why snow is on some mountains and not on oth-ers—the *wind* has a hand in the matter. In fact, wherever the east wind came through the gap, and struck, the ground was frozen. A range of mountains makes winter on one side and summer on the other. When we got through, the ground was all white; and as we ascended the canyon the streams be-gan to be frozen over. Well, we have been several hours running up this canyon to the summit; that is, to the point where the mountain stream ends and a new one com-mences on the other side of the range. You can scarcely imagine with what interest I watched the whole matter. When we started up the canyon the stream was al-most a river; but it gradually dwindled down until I saw it disappear entirely, and nothing was left but some willow-like bush-es. While I was watching for another stream and canyon to start down the oppo-site side of the mountain, the cars ran into a snow-shed and stopped observations. These snow-sheds were almost as tight and dark as a tunnel. The conductor said

they had closed it up for winter. When we got out of the tunnel the new canyon had commenced, or, rather, one ran into the other. On the extreme summit of the range of mountains there was quite a piece of ground that was comparatively level, covered with pine-trees. Of course, the cars ran through the lowest point, so that there was no chance to look miles off and down into the great valley. And not once, in climbing these great mountain ranges have I seen a place to look clear into the lowermost valley. One mountain peak rises above another so gradually that, even if you get to the top of a peak (which one never does on the cars) you see but little more than neighboring peaks. When a single mountain rises out of the plain you can easily get a view of said plains; but not so with the peaks of a mountain-range. Single peaks seldom go over a quarter of a mile above the plains, while mountain ranges are two or three miles higher than the sea-level. Going up the mountains we found many charcoal-pits for burning charcoal for the smelting-furnaces in the vicinity of Salt Lake. The principal metal ores worked are lead and silver. The charcoal is burned in permanent kilns, resembling an egg in shape, with the large end down.

Just before dark we came to the wonderful rocks called Castle Gate, close by the station of the same name. A very good-looking wall with straight and almost smooth sides, juts out from the mountain, and comes close up to the track. Now, there is nothing so very wonderful about this were it not for the fact that this wall is from 500 to 800 feet high; still stranger, a sort of tower runs up its straight outer edge, and this is further ornamented by an enlargement on the extreme top, resembling a turret. On the opposite side of the track, but a little further up, is a similar one, smaller in size. If viewed from the right spot, it is exactly like

a picture which is made from a photograph. By the dim light of the moon we had, a little further on, several views of the terraced mountains. These have a flat top, some of them a mile or two long, and perhaps half as wide, and, stranger still, the sides are beautifully terraced with a series of level shelves clear around. These shelves



CURRICANTI'S NEEDLE AND THE BLACK CANYON OF THE GUNNISON.

may be 25, 50, or 100 feet from step to step. While the mountain is oval in shape, it seems hard to believe it is not some gigantic piece of engineering and architecture.

During the day we saw huge mountains, with their rocky side looking as if some monster giant had hacked it with a huge butcher-knife, the hack-marks crossing each

other at an oblique angle. Other mountains were decked all over with great clock-shelves, with nicely rounded corners. These wondrous changes in the mountains and desert remind me of the way the women-folks used to make different patterns of patchwork. They were always studying up something new and different, and then holding it up to see if we didn't think it pretty. Well, dame Nature has been holding up lots and lots of things to me in just that way, and I want to respond, "Yes, they are *all very pretty indeed.*" How wondrous are thy works, O Lord!

Dec. 16.—Last night we passed the celebrated Black Canyon. It was in the night time, and no moon; but I got permission to stand on the platform, and, with a little explanation, I got a glimpse of most of it. It is about 15 miles in length, and the most of the way the Gunnison River has a path straight through solid mountains. We can not say the river cut it, for I am told that, on each side, the ragged edges of the precipices are so near alike no one can escape the conclusion they were once united. How, then, did this great rent come, separating them from 50 to 100 feet or more? The books tell us it was probably a "season crack," or "check," in this earth of ours. The water then flowed into the chasm, filled it up, then wore it more or less by using it as a water-course. Just about half way through the canyon is Currecanti's needle, apparently a slice, or splinter, that stood almost between the two at the time of the great crack. Some of the cliffs are said to be 2000 feet high, or nearly half a mile.

Just look at some object that you know is about half a mile away, and then imagine the rocky cliff in the picture that distance, almost straight up, and you have some idea of the scenery through the Black Canyon. When you stand in front of the needle, and look at it, you might be somewhat disappointed, for it looks more like a great mountain than a needle; but, do not be in haste to condemn the guide-books; wait a little until the locomotive takes you around the curve so you can look at it edgewise, and then you will find that, at the proper spot, it looks more sharp and splinter-like than it does in the picture on the opposite page. A single sentence from one of the guide-books, called "The Crest of the Continent," describes it better than any language of my own would do:

In the very center of the canyon, where its bulwarks are most lofty and precipitous, unbroken cliffs rising two thousand feet without a break, and shadowed by overhanging cornices,—just here stands the most striking buttress and pinnacle of them all,—Currecanti needle. It is a conical tower standing out somewhat beyond the line of the wall, from which it is separated (so that from some points of view it looks wholly isolate) on one side by a deep gash, and on the other by one of those narrow side-canyons which in the western part of the gorge occur every mile or two. These ravines are filled with trees, and make a green setting for this massive monolith of pink stone whose diminishing apex ends in a leaning spire that seems to trace its march upon the sweeping clouds. Straight as a plummet's line, and polished like the jasper gates of the Eternal city, rise these walls of echoing granite to their dizzy battlements. Here and there a promontory stands as a buttress; here and there a protruding crag overhangs like a watch-tower on a castle-wall.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, FEB. 15, 1889.

The statutes of the Lord are right, rejoicing the heart; the commandment of the Lord is pure, enlightening the eyes. PSALM 19: 8.

"METHOD OF REARING EARLY QUEENS."

THIS is the title of an 8-page pamphlet, written by G. M. Doolittle, and published by E. L. Pratt, Marlboro, Mass., editor of the *Queen Breeder's Journal*. The plan is succinctly stated, and will produce good queens. The price is 5 cts., and the work can be obtained of the publisher.

ANOTHER ENGLISH BEE-BOOK.

THE "Book of Bee-keeping" is the title of a new work by W. B. Webster, and published by L. Piccott Gill, 170 Strand, W. C., London, England. The book contains 98 pages. The matter is well arranged and illustrated, and fully up to the times. It is sold at the very low price of one English shilling, or 25 cents of our money. It can be obtained of the publisher, as above.

DEATH OF WILLIAM RAITT, EDITOR OF THE BEE-KEEPERS' RECORD.

OUR good friend laid down the cares of this life, in obedience to the call of the Master, Jan. 9. An extended notice of his death should have appeared in this issue, but it is unavoidably left out. Friend Raitt was not only widely known and loved in England, Ireland, and Scotland, but, by his genial writings, to a considerable extent throughout the United States. He loved bees, but he loved his Maker and his fellow-men more; and while we feel sad to lose him from among us, we can rejoice that what is our loss is his gain.

THE GOVERNMENT SEED BUREAU, AND THE PROSPECTS OF ITS BEING ABOLISHED.

WE notice by the Boston *Herald* of Feb. 1 an exposure of some of the frauds connected with the matter to which I have alluded on page 000. We extract as follows:

Mr. Burnett showed that, through the members of the House, there were distributed last year 253,739 packages of turnip seed, and of other seeds the following number of packages: Tobacco, 89,107; grass seeds, 9679; cotton, 4023; corn, 3943; sugar beet, 2992; sorghum, 2750; oats, 2088; quarts wheat, 354; quarts millet, 26.

Turnip seed was the cheapest in the lot. That was the reason why it has been in such quantities. Millet, one of the most valuable of the fodder plants, which has only within the past few years attracted attention, was scarcely used at all.

We also take the following:

Unless the action of this morning is rescinded at a future meeting of the committee, or the bill amended in the house, there will be but one more year of the present bad practice of distributing seeds through the medium of members of Congress.

Now, I want to call attention to the matter of distributing seeds of tobacco; and I also want to take our agricultural papers to task for publishing ar-

ticles on tobacco-growing. At the same time, and in the very same paper in which these articles are published, the editors frequently give us editorials in reference to the harm that tobacco is doing in our nation. Well, where is the consistency in passing laws to prohibit the use of tobacco among minors, and at the same time distribute 89,107 packages of seed? In the same line, how can an editor warn his readers against the pernicious effects of tobacco, and then in another column give long articles teaching how to grow crops of it successfully? If new and valuable seeds are turned over to our experiment stations in all the different States, they will, without doubt or question, do good. I feel under great obligations, not only for seeds I have received from our experiment station, but for the help they have given me all along in my work of testing garden seeds.

THE ROCKY-MOUNTAIN BEE-PLANT.

SAMUEL WILSON, in his seed catalogue for the present season, gives a picture of what he calls the Mexican honey-plant, or *cleome integrifolia*, and labels it the greatest discovery of the modern age. Now, there may be different varieties of *cleome integrifolia*; but the blossoms pictured in the above catalogue have very little resemblance to our well-known Rocky-Mountain bee-plant. We have raised this plant for years on our grounds, and, as our readers are very well aware, we have for years sold the seed at 5 cents per package. As friend Wilson has always been considered a good and responsible seedsman, we can hardly understand why he should make this mistake. Very likely, however, it is no worse a mistake than many of the colored pictures of some of our new vegetables. In the first place, the picture is not at all correct, as compared with the cleomes that grow in our gardens; neither is it like the Rocky-Mountain bee-plant that I found growing in its native state on the Rocky Mountains. The illustration shows the flowers literally dripping with honey. This, too, is a great exaggeration. The plant bears honey in the morning, much as the spider plant does; but I am sure never in any locality just as it is pictured. The leaves and unopened blossoms are pictured very correctly. We quote the following from the closing remarks in regard to it:

Mr. Jesse Frazier, one of the largest apiarists in the United States, and one of the most prominent and reliable citizens of Fremont Co., Colorado, says: "No other plant known to the civilized world can vie with the *cleome integrifolia* in producing honey as food for bees. And no other honey is as clear and of as good quality." He further says, "I have frequently weighed my bee-stands for a number of mornings and evenings, and found many of them to increase as much as 9 lbs. a day."

Still further on he says:

As yet the seeds of this valuable plant are very scarce. Our agent, after traversing the mountains of Mexico for nearly two months, procured only about 100 pounds. Single packet, 25 cts.; 5 packets, \$1.00. Each packet will have directions for cultivating, and contain seed enough to plant a row 60 feet long, which will produce sufficient honey for one colony of bees.

Now, it is possible that Mr. Frazier has, in Colorado, received as much as 9 pounds of honey in a day from a single colony, all gathered from the Rocky-Mountain bee-plant; but it is a mistake in saying that a row of plants 60 feet long will produce sufficient honey for a colony of bees; neither are the seeds scarce or high-priced. Many of our subscribers have wanted to sell us the seed for several

years past, and the price has at no time been more than 15 cents an ounce or \$1.25 a pound. We are told that other catalogues have the same colored plate and the same string of extravagant statements.

SPECIAL NOTICES.

ADVANCE IN THE PRICE OF PUMPKIN SEEDS.

Last year we sold pumpkin seeds for \$1.50 per bushel; but as we are not able to buy them at that price now, we have been obliged to advance the price to 75 cts. per peck, or \$2.50 per bushel.

Prof. Cook has just finished an appendix to the Maple Sugar book, which will be pasted in the back of all that are sold after this date. Our customers who have already purchased the above work can have the appendix by making application on a postal card.

HENNIS' FRUIT AND VEGETABLE PRESS.

On pages 130 and 131 of this number is a description of the above utensil. In giving the price of it, however, the types say 25 cents, when it should be 35. Please remember this advance of 10 cents when you order.

DISCOUNTS FOR EARLY ORDERS.

Any of our readers intending to purchase supplies soon will do well to notice that the special discounts we allow for early orders are good only until March 1st, two weeks longer. If you have decided upon what you want, take advantage of the discounts by ordering at once. Your orders will receive prompt and careful attention, and you will get your goods in ample time to have them ready for the bees.

AMERICAN CHESTNUTS.

As these were very plentiful during the past season in our vicinity, they are now offered at lower prices than ever known before. To the friends who live where chestnuts do not grow, and are not common, they may be quite a novelty. They will surely please the children, if nobody else. We can, until further notice, furnish them at 5 cents a pint; 8 cents a quart; 50 cents a peck, or \$1.75 a bushel. If wanted by mail, add 10 cents a quart. To show you that they are good, we will mail you a sample package for 5 cents.

WANTED—AN EARLY YELLOW PUMPKIN.

Every season we have a demand for pumpkins—that is, the old-fashioned yellow ones—long before we can get them; and last year the people of our town would pay a bigger price per pound for a yellow pumpkin than they would for a Hubbard squash or even for a watermelon. Now, then, who has got the seed of a small-sized early pumpkin? Why, I have actually been thinking of starting some pumpkin-vines in the greenhouse, so as to have yellow pumpkins on the market before any farmer could bring them in. By accident we had a few extra early ones two or three years ago. They grew on the "New Agriculture" grounds. They sold readily at good prices, before any were to be had elsewhere; but it did not then occur to me that there was an opening for a new industry. Now, our people say they would rather have a yellow pumpkin to make pies of than any sort of squash, so do not offer us a squash, saying it is just as good. It would not fill the bill unless it looks like a pumpkin and is a pumpkin. Now, I have much faith that GLEANINGS will find something that will just fill the bill—just see if it doesn't.

PRICE LISTS RECEIVED.

Price lists have been received from the following:
Frank A. Eaton, Bluffton, O., sends out a price list of fowls, bees, and queens.
E. Kretschmer, Coburg, Ia., sends us a list of bee-supplies in general.
H. E. & E. L. Pratt, Marlboro, Mass., send out a list of Italian and Carniolan queens.
J. W. K. Shaw & Co., Loreauville, La., have issued their regular list of Italian queens, etc.
J. Nebel & Son, High Hill, Mo., send out an 8-page list of Italian bees and queens.
F. A. Snell, Milledgeville, Ill., issues a 16-page list of supplies, Italian bees, etc.

J. E. Shaver, Friedens, Va., sends us a 24-page list of bee-keepers' supplies.
B. F. Carroll, Blooming Grove, Texas, sends us a 4-page list of poultry and Cyprian bees.

We have just printed for J. P. Caldwell, San Marcos, Texas, a 6-page list of bees, queens, and supplies.

Our printers are now at work on Oliver Foster's annual price list of bees and supplies. Send for a copy, send for a copy.

CONVENTION NOTICE.

The bee-keepers of Buchanan County, Mo., met at Agency Ford, on the 2d instant, and organized the Agency Bee-keepers' Association. Our next meeting will be held on the last Saturday in March. J. G. GRAHAM, Sec'y.

The eleventh annual meeting of the Texas State Bee-keepers' Association will be held at the bee-farm of Vice-president W. R. Graham, Greenville, Texas, May 1 and 2, 1889. B. F. CARROLL, Pres't.

ALSIKE.

WHOLESALE AND RETAIL; BEST OF SEED.

ALSO GARDEN SEEDS.

C. M. GOODSPEED, 4tfid THORN HILL, N. Y.

In responding to this advertisement mention GLEANINGS.

BEEES FOR SALE!

Colonies, Nuclei, Queens (Tested and Untested), at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,
Columbia, Tenn.



4-9th

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, \$2.00; after June 1, \$1.50. Untested queens, \$1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,
Bryant Station, Maury Co., Tenn.
4-9d

In responding to this advertisement mention GLEANINGS.

SECTIONS and FOUNDATION CHEAPER THAN EVER.

Sections Only \$3. Dealers write for special prices. Free samples and price list. 1-12pb
(Near Detroit.) M. H. HUNT, BELL BRANCH, MICH.

FOUNDATION for brood-chamber, 30 cts. per lb. 4-5-6d
W. T. LYONS, Decherd, Tenn.

FOR SALE.

About 20 Colonies of Good Italian Bees
IN ROOT'S PORTICO HIVE.

Will close out at a bargain. Reason for selling, away at school. D. H. TOWNLEY,
4-5d ELIZABETH, UNION CO., N. J.

Beautiful Laced Wyandottes.

Eggs for Hatching, \$1.00 for 13; \$2.00 for 30. Orders Booked Now. 3tfidb
J. W. GEISWOLD, ROSE, WAYNE CO., N. Y.

B. J. MILLER & CO.,

NAPPANEE, - ELKHART CO., - IND.,
MANUFACTURERS OF

BEE-HIVES AND SUPPLIES.

Sections, T-tin cases, shipping-crates, metal corners, etc. Five per cent discount on supplies in Jan. and Feb. Price list free. Send for one. 1tfidb

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting 3000 or more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfidb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75

PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

COODELL & WOODWORTH MFG. CO.,
3tfidb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

MISTAKES.

In the BEE-KEEPERS' REVIEW for Feb., the veterans "own up" to the mistakes they have made, and point out those being made at present by other bee-keepers. This number also has a long article from Byron Walker, showing how bees may be obtained in the spring very cheaply, and in large quantities from the South.

Price of the REVIEW, 50 cts. a year. Samples free. Back numbers furnished.

The Production of Comb Honey is a neat little book of 45 pages; price 25 cts. This book and the REVIEW one year for 65 cts. For \$1.00 the REVIEW will be sent two years, and the book "thrown in." Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,
613 Wood St. Flint, Mich.

In responding to this advertisement mention GLEANINGS.

CLOSING-OUT SALE!

I am going to Montana, and will therefore sell at low figures my apiary of 75 colonies of Italian bees, in lots or by the single hive; several hundred empty combs, L. size; empty hives; a few new Clark smokers; one Dunham 12-inch foundation-mill; one Novice honey-extractor; one 4-h. p. engine and boiler; one 10-h. p. engine and boiler; one 12-inch planer; one saw-table and mandrel, with 4 saws; one saw-table with 4 grooving-saws and jointer attachment; one light table with mandrel and one saw; one 16-foot 1½ turned shaft, with 4 wood bearings; 4 wood pulleys; one counter-shaft, 6 ft., 1½ inch, with 4 wood pulleys; all are split pulleys, and just as good as iron ones; leather and rubber belting; also one No. 7 Wilson bone-mill, all wearing parts new last spring, run but little since. It is a paying machine. Also 40 bushels Japanese buckwheat for seed. Write for what you want, and I will give full particulars with prices. I want all sold by April 1. A. A. FRADENBURG,
4tfidb Port Washington, O.

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfidb

BROTHER BEE-KEEPERS,

Order your supplies from a railroad center, and save freight. Goods sold as cheap as elsewhere. Send for price list free. 2tfidb
W. D. SOPEL, Jackson, Mich. Box 1473.

March	ITALIAN BEES AND QUEENS EARLY.		
	Imported Ital. queen (1888 Imp.)		\$5.50
15th	Tested " "		2.25
	Untested " "	\$1.00 three	2.75
1	1 Sim. frame Nucleus, ½ lb. bees.		1.25
1	" " " " " "		1.75
12	" " " " " "		2.00
12	" " " " " "		2.80

Ten per cent discount to all who send orders so early as to reach me 30 days before they wish their orders filled. Make money orders payable at Clifton. S. H. COLWICK, Norse, Bosque Co., Tex. 3-8db

In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

**BUY YOUR SUPPLIES NEAR HOME AND
SAVE FREIGHT.**

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3tfdB **Box 11. Higginsville, Mo.**

☞ In responding to this advertisement mention GLEANINGS.

THE . BEST . HIVES FOR THE LEAST MONEY. BOTH SINGLE AND DOUBLE WALLED.

If you need any hives don't fail to send for my price list, as I make a specialty of hives, and think I have the best arranged hives on the market, at bottom prices. My hives take the Simplicity frame.

3tbd **J. A. ROE, Union City, Ind.**

☞ In responding to this advertisement mention GLEANINGS.

LOOK OUT!

One of the best bee locations in the Fruit Belt of Michigan. Small fruit-farm (44 acres) to sell—Bees and "fixings" cheap. For particulars address

J. O. SHEARMAN,

New Richmond, - 3tfdB - Michigan.

☞ In responding to this advertisement mention GLEANINGS.

BIG BUCKEYE FIELD CORN.



GOLD COIN SWEET CORN.

☞ In responding to this advertisement mention GLEANINGS.

STRAW BLACK GOOSE RASPB DEW

BERRIES

CURRENTS and GRAPES.
ADA Large, Late, Hardy, Prolific,
Black RASPBERRY, Latest of
all in Ripening.

FIRST-CLASS * PLANTS * AT * LOW * RATES.

THEO. F. LONGENECKER,

Correspondence Solicited. 3tfdB **Dayton, Ohio.**

☞ In responding to this advertisement mention GLEANINGS.



☞ In responding to this advertisement mention GLEANINGS.

SEND FOR HEDDON'S CIRCULARS.

Address

JAMES HEDDON
DOWAGIAC, MICH.

3-4d

☞ In responding to this advertisement mention GLEANINGS.

NEARLY THIRTY TONS

—OF—

DADANT'S FOUNDATION

SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb., and numerous other dealers.

Write for free samples, and price list of bee supplies. We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

CHAS. DADANT & SON,

3tfdB **Hamilton, Hancock Co., Illinois.**

☞ In responding to this advertisement mention GLEANINGS.

ON 30 DAYS' TRIAL.

**THIS NEW
ELASTIC TRUSS**

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail Circulars free.

EGGLESTON TRUSS CO., Chicago, Ill.

☞ In responding to this advertisement mention GLEANINGS.

Bless Your Souls!

My brother farmers, why pay 10 or 20 cts. for a seed catalogue, when you can receive one containing just as many and very probably more varieties and all new vegetables that are really valuable, for just **NOTHING**? It may have less paint about the covers, but, great Scott! we are not after paint, but seed, fresh and true to name, such as will make with a master's hand its own picture all over our farms and gardens; seed I am not afraid to **WARRANT** on the cover of my catalogue. Come, my fellow farmers, and join the thousands, who for thirty years have been users of my seed; why, we were a goodly company and having pleasant times together before the great majority of the present race of seedsmen (bless the boys!) had left their nurse's arms! Send for a catalogue.

JAMES J. H. GREGORY, Marblehead, Mass.,

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 6 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first. A. F. BRIGHT, 3tfdb Mazeppa, Wabasha Co., Minn.

WANTED.—Two students for the coming season. GEO. E. HILTON, Fremont, Mich. 4-5d

WANTED.—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest. R. H. CAMPBELL, 3tfdb Madison, Morgan Co., Ga.

WANTED.—You to send for my illustrated Price List of supplies; Bees, Queens, etc. 4-5d GEO. E. HILTON, Fremont, Mich.

WANTED.—To exchange for honey or offers, about 25 colonies of Italian bees, in new, movable-frame hives, frames $9\frac{1}{2} \times 12\frac{1}{2}$ inside measure; 8 frames to the hive; also one second-hand Barnes foot-power combined saw. CHAS. DOREMAN, Pittsburg, Tex.

WANTED.—To exchange one American Incubator, 250-egg capacity, about 50 nuclei, 2, 3, and 4 frame, 20 cts. each, about 50 Simplicity hives, 10 frame, \$1.00 each, for horse-power, corn-grinder, or any thing useful to a farmer. GEO. W. BAKER, 4-5d Milton, Wayne Co., Ind.

WANTED.—To exchange Italian bees for timber or a "Springfield roadster." L. HEINE, 3tfdb Bellmore, Queens Co., N. Y.

WANTED.—Bee-keepers in Missouri, Kansas, Nebraska, and Arkansas to learn something of value by addressing Rev. E. T. Abbott, St. Joe, Mo. 4-5

WANTED! Bee-Help. Will engage on favorable terms two young men, desirous of learning practical apiculture. None but strictly temperate need apply. S. I. FREEBORN, Ithaca, Wis. 4-7db

WANTED.—Situation in an apiary for the season of 1889, from 6 months to a term of years. 4-5d S. W. WHITE, Liberty, Clay Co., Mo.

WANTED.—To exchange one cutter-head, one dovetailing mandrel with saws, one six-inch rubber-belt, 30 ft. long; 50 ft. of three-inch rubber-belt, all as good as new, for bees or bee-keepers' supplies; also one six-inch Pelham fdn. mill. 4tfdb THOMAS GEDYE, Kangley, LaSalle Co., Ill.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address OTTO KLEINOW, 4tfdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange my new price list of pure Italian bees and Poland-China swine for your name and address written plainly on a postal card. N. A. KNAPP, Rochester, Lorain Co., O. 5878d

WANTED.—To exchange 25 new improved chaff hives (Root's pattern), packed ready for use, and about 400 fine brood-combs, at 10c each, for bees. Correspondence solicited. Address 5-6d W. H. SWIGART, Dixon, Ill.

WANTED.—All who are interested in thoroughbred poultry to send for my new illustrated circular. Valuable information given free of charge. S. P. YODER, 5-6d East Lewistown, Mahoning Co., O.

WANTED.—A woman to do light housework, and help some with bees. Location in prohibition town. Religious services every Sunday. 5d J. B. MARSH, Collinsville, Ala.

WANTED.—Japanese buckwheat in exchange for bee-keepers' supplies or cash. 5tfdb M. H. HUNT, Bell Branch, Wayne Co., Mich.

WANTED.—To exchange my 20-page price list for your name. W. D. SOPER, Jackson, Mich. 5tfdb

WANTED.—To exchange a Whitman fountain pump for a small-sized printing-press. 5d J. B. MARSH, Collinsville, Ala.

WANTED.—Position, charge of on shares, or would purchase an apiary in Kentucky, Tennessee, Missouri, or Texas. Address 5d APIARIST, Box 226, Williamson, N. Y.

WANTED.—Bee-supplies, books, offers, for eggs of R. C. B. Legh. or W. P. Rocks. 5d W. W. KULP, Pottstown, Montg. Co., Pa.

WANTED.—To exchange bees in Simp. hives, for Japanese buckwheat, Jersey cows, single-top buggy and harness, new; farm wagon, supplies. L. D. GALE, Stedman, Chaut. Co., N. Y.

WANTED.—To exchange one set of Bunyan's Practical Works, 8 vols., new; one set of D'Aubigne's History of Reformation, 5 vols., new; Life of Christ, 1 vol.; Our Country, its Past, Present, and Future, for extracted honey or apiarian supplies. STEPHEN ROESE, 5d Box 91, Maiden Rock, Wis.

WANTED.—A good hand to look after the bees, and to work in the garden and greenhouse the rest of the year. GEO. M. KELOGG, 5d Pleasant Hill, Mo.

WANTED.—To exchange Empire State potatoes for bee-supplies or Barnes foot-power combined saw. FRED MYERS, Sharon, Pa. 5d

WANTED.—To exchange beautiful pine-trees, 1 to 2 ft., valued at 5 cts., for any thing. Write to F. C. MORROW, Wallaceburg, Ark. 5d

TO exchange, one set of International Cyclopaedia, 1 edition 1888, 15 volumes; also one set Scott's Commentary on Bible, six volumes, both in good order, at bargain, for extracted honey or offers. A. H. VAN DOREN, Mons, Virginia, 5tfdb

WILL exchange Nursery stock, shipped from Garrett's Nursery, Mansfield, Ohio, for full colonies or bees by the pound in May. 5d J. B. MASON, Mechanic Falls, Me.

WANTED.—Young man to work at market gardening and do marketing. Must furnish reference as to honesty, etc. Will have opportunity to learn bee-keeping and the marketing of honey. Will pay right party \$20 per month and board. 5d W. HICKOX, Rockport, Ohio.

WANTED, you to send for my New 1889 Price List, illustrated, free. Best section-case on earth. Bees, Queens, etc. FRANK A. EATON, Bluffton, O.

THE RAMBLER

Says to people in general and to bee-keepers in particular, that he has something to sell. Our blackboard saves steps all summer, and is a comfort every time it is used. Size, $1\frac{1}{2} \times 3$ feet, and crayons as long as your finger, all on a roller, mailed for 25 cts. Also recherche (that means boss) sleeve-protectors, absolutely water-proof. They are not little stung things that come half way to the elbow, but protect the whole arm. Mailed for 25 cts. A whole suit of clothes, weight only 1 lb., will keep the entire person clean, zuzst a fit, with more or less handy pockets. "Handy" buttons hold them snug around wrists and ankles. By mail for \$1.50. Several other recherche novelties and bargains described in our circulars. Address

THE RAMBLER,
Hartford, Wash. Co., N. Y.

DADANT'S FOUNDATION FACTORY, WHOLE-SALE AND RETAIL. See advertisement in another column. 3tfdb

SECTIONS, BEE-HIVES— and SUPPLIES!

White basswood V-grooved section, \$1.90 to \$3.15 per M. Parties wanting 3000 or more, write for special prices. Sample and price list free. Address

GOSHEN BEE-SUPPLY CO.

Goshen, Elkhart Co., Ind.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE IN VIRGINIA.

Early Queens, Nuclei, and Full Colonies. Also Hives and Supplies.

Write for what you want.

5td

J. C. FRISBEE, Suffolk, Nansemond Co., Va.

Sea-Shells! Sea-Moss!

A 1-pound package of beautiful shells and sea-moss sent postpaid to any address for one dollar. Half-pound package, 50 cts. Address

5d MRS. C. W. BUNKER, Oceanside, Cal.

☞ In responding to this advertisement mention GLEANINGS.

EGGS FOR HATCHING. from choice S. C. B. Leghorns; can fill all orders promptly, great and small. Circulars free. A few O. T. C. pigs for sale. 41-5d
FILLMORE DECKER, New Florence, Westm. Co., Pa.

EARLY QUEENS. I will send young queens by return mail from this date, Jan. 25, 1889.
5-6d MRS. M. A. NEEDHAM, Sorrento, Lake Co., Fla.

POTATOES. Four choice new varieties, SUMMIT, FEARNAUGHT, DELAWARE, and POTATUCK, 40 eyes of each postpaid \$1.00. I have mailed potato-eyes as far as Wash. Ter., and never had a report of failure. A collection of BARE SEEDS, postpaid, 30c. Send now for catalogue of SEEDS, PLANTS, BEES, and QUEENS. 5-6-7d

CHRISTIAN WECKESSER,

Marshallville, Wayne Co., Ohio.

☞ In responding to this advertisement mention GLEANINGS.

CLOSING-OUT SALE!

I am going to Montana, and will therefore sell at low figures my apiary of 75 colonies of Italian bees, in lots or by the single hive.

A. A. FRADENBURG,

Port Washington, O.

BEE - SUPPLIES

AT DIFFERENT PLACES,

TO BE DISPOSED OF AT A SACRIFICE.

These are all new and first-class goods, which, for various reasons, are on our hands, away from home; and to dispose of them we offer them very low. If some of our readers, not far from where the goods are, need them, this is a good opportunity to get a bargain. Indicate which one you want, by the number as well as name.

No. 1. At Eureka Springs, Carroll Co. Ark.
100 wide frames, to hold eight 1-lb. sections. Value \$2.00. Will sell for \$1.50.

No. 2. At San Marcos, Hays Co., Texas.
5000 prize sections, $5\frac{1}{4} \times 6\frac{1}{4}$ high. Value \$30.50. Will sell for \$17.00.

No. 6. At Lawrenceburg, Tenn.
One No. 1 Honey-extractor, for frames $11\frac{1}{4} \times 12\frac{1}{2}$ or less in depth. Value \$6.00. Will sell for \$4.50.

No. 7. At Yorktown, Delaware Co., Ind.
11 Heddon slatted honey-boards double bee-space. Value \$1.00. Will sell for 75 c.

No. 9. At Higginsville, Mo.
One 4 H. P. engine and boiler complete, used only five months. Worth new, \$275. Will sell for \$195.

No. 11. At Johnson City, Washington Co., Tenn.
One honey-extractor that will take frames $11\frac{1}{4} \times 16$, or smaller. Value \$7.00. Will sell for \$5.00.

No. 16. At Lochiel, Ind.
20 slatted honey-boards to use between brood-chamber and T supers on Simp. hives, bee space top and bottom as we now make them. Value \$1.90. Will sell for \$1.50.

No. 17. At Berlin, Wis.
One 36-inch Exhaust Fan, second hand. It was used about 8 years in our factory. Boxes have been re-babbitted and the fan is in first-class running order. A new one this size is worth about \$100.00. We will sell this for \$25.00. It is a bargain to the one who is in need of one this size.

A. I. ROOT, Medina, Ohio.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	June	to Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75	
Tested.....	3 00	2 75	1 75	1 50	
Untested.....		1 25	1 00	1 00	
6 Untested.....		5 50	5 00	4 50	
12 Untested.....		9 50	9 00	8 50	

Contracts taken with dealers to furnish queens by the week at special rates. Address

J. P. CALDWELL, San Marcos, Tex.

☞ In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish any thing you want. Price $1\frac{1}{4}$ cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

- 8 | 10 rolls, 67 sq. ft. each: 1 each of 66, 65, 64, 63, 62, 54, 40, 27, 24, 22, and 4 sq. ft.
- 12 | 29 rolls of 160 sq. ft. each; 4 of 98, and 1 each of 102, 97, 92, 75, and 44 sq. ft.
- 16 | 4 rolls of 133 sq. ft.; and 1 each of 132, and 130 sq. ft.
- 24 | 13 rolls of 200 sq. ft. each.
- 26 | 80 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
- 28 | 44 rolls of 283; 3 of 284; 1 of 257 sq. ft.
- 34 | 6 rolls of 283 sq. ft.
- 38 | 9 rolls, 316 sq. ft.
- 1 roll, 42 inches, of 350 sq. ft.; 2 of 44 in., 366 sq. ft.; 1 of 46 in., 121 sq. feet.

THE FOLLOWING CLOTH IS BLACK.

- 40 | 4 rolls, 333 sq. ft. each.
- 42 | 7 rolls, 350 sq. ft. each.

A. I. ROOT, Medina, O.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls— $\frac{3}{4}$ ct. per Square Foot.

Five or more pieces, 5 per cent off; ten or more, 10 per cent discount.

Inches wide.	Inch mesh.	No. of Wire.
60	2	19 495, 445, 335, 330, 325, 285, 280, 240, 230, 180, 165.
72	2	17 195.
72	2	18 720, 672, 636, 618, 558, 510, 438, 270, 252, 232, 168, 162, 156, 150, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting.

A. I. ROOT, MEDINA, O.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—The supply of honey is large; demand light; we have no change in prices.
Feb. 22. CLEMONS, CLOON & Co.,
Kansas City, Mo.

St. LOUIS.—*Honey.*—Very dull market. Mild weather interferes with sales. No demand, except from local bottlers. Quotations same as last.
Feb. 22. D. G. TUTT GRO. CO.,
St. Louis, Mo.

COLUMBUS.—*Honey.*—Very little good stock on the market, and little demand. Sales slow, and scarcely any moving; asking 17 for No. 1 white, in 1-lb. sections. No market for any other.
Feb. 21. EARLE CLICKENGER,
Columbus, Ohio.

CINCINNATI.—*Honey.*—There is nothing new to report since our last. No overstocking of the market by any means, but demand is moderate only. We quote extracted honey at 5@8 on arrival. Comb honey, 12@16, in the jobbing way.
Beeswax.—Demand is good at 20@22 on arrival for good to choice yellow. CHAS. F. MUTH & SON,
Feb. 21. Cincinnati, Ohio.

DETROIT.—*Honey.*—Best white comb continues to be quoted at 16@17 cts. Extracted, 9@10; few sales.
Beeswax, 22@23. M. H. HUNT,
Feb. 22. Bell Branch, Mich.

ALBANY.—*Honey.*—Like all other produce is moving off better again at—Buckwheat, comb, 10@12; clover, comb, 10@15; extracted, buckwheat, 6@7; extracted, clover, 7@8.
Feb. 15. H. R. WRIGHT,
Albany, New York.

FOR SALE.—I have a quantity of extracted honey in 50-lb. kegs, which I will sell at the following prices: 8c for the white and 7c for the amber, f. o. b. The honey is first-class. C. H. STORDOCK,
3-6db Durand, Ill.

«New Orleans Apiary.»

Early Queen Orders booked now for Italian or Carniolans. Warranted purely mated and safe arrival guaranteed. Address
4tfdb J. W. WINDER, New Orleans, La.
In responding to this advertisement mention GLEANINGS.

SECTION PRESS.

PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to
5-16db
WAKEMAN & CROCKER, Lockport, N. Y.

In responding to this advertisement mention GLEANINGS.

75 COLONIES OF ITALIAN BEES FOR SALE CHEAP.

Must reduce number of stocks. Send for prices. Also descriptive circular of the **Indiana Hatcher**—the best incubator made—simple, self-regulating, and guaranteed to hatch a greater number of fertile eggs than any other hatcher made.

Address REYNOLDS BROS.,
5-6d Williamsburg, Ind.

In responding to this advertisement mention GLEANINGS.

MYER'S FRUIT-PICKER, for apples, peaches, plums, etc., \$1.50. Great inducements, and exclusive territory to agents. Send for illust'd circular and price list. A. METZLER, East Lewistown, Ohio. 5-6d



SEEDS GIVEN AWAY. ©
P. K. G. Mixed Flower Seeds (500 kinds),
GUIDE, and 10ct. Certificate for Seeds, your
choice, all for 2 stamps (4c). Flower lovers
delighted. Tell all your friends.

G. W. PARK, Fannettsburg, Pa.
Be prompt. This offer will appear but once more.
In responding to this advertisement mention GLEANINGS.



**Eaton's Improved
SECTION CASE.**
LATEST AND BEST. Send for
free catalogue. Address
FRANK A. EATON,
5-16db Bluffton, Ohio.

In responding to this advertisement mention GLEANINGS.

1889. 19th Year in Queen-Rearing. 1889.

ITALIAN QUEEN-BEES.

Tested queen, in April, May, and June.....\$1 50
Untested 80

Sent by mail and safe arrival guaranteed. Also nuclei and full colonies. Eggs of Pekin ducks—White and Brown Leghorns, and White-crested Black Polish chicks, \$1.50 per dozen. Address

W. P. HENDERSON,
5tfdb Murfreesboro, Tenn.
In responding to this advertisement mention GLEANINGS.

CARNIOLAN BEES.

A young queen, March, April, and May, \$2. June, July, August, \$1.50; Sept., Oct., \$1. A full colony in an original Carniolan hive, March, April, and May, \$5; Sept., \$4.50. Money must be sent in advance. No guarantee on shipment by mail. Queens sent by express, which die in transit, will be replaced if returned in a letter.

MICHAEL AMBROZIC,
In Moistrana, near Lengenfeld,
5d Carniola, Austria, Europe.

J. M. YOUNG, OF ROCK BLUFFS, NEB., is now moving his apiary to Plattsmouth, Neb. All his customers and bee-keeping friends will take due notice, and address him at Plattsmouth, Box 874, Cass Co., Neb. 5d

LANGSTROTH.

In the BEE KEEPERS' REVIEW for March will be begun a comprehensive review of "Langstroth on the Honey-bee, Revised by Dadant." It will be continued through several numbers. If you wish for the cream of this work, to learn what it contains new, to know what few points the REVIEW opposes, subscribe at once for the REVIEW. The March number does the best that can be done in answering the query: "Which are the best bees?"

Price of the REVIEW, 50 cts. a year. Samples free. Back numbers furnished.

The Production of Comb Honey is a neat little book of 45 pages; price 25 cts. This book and the REVIEW one year for 65 cts. For \$1.00 the REVIEW will be sent two years, and the book "thrown in." Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,
613 Wood St. Flint, Mich.
In responding to this advertisement mention GLEANINGS.

FOR SALE.

UTIFITS for making 2-OUNCE SHAVING SECTIONS, consisting of one Form and a sample Frame of 20 sections made up, ready to lift off the Form; also enough Veneer to make 1000 Sections. All packed and delivered at the Express Office, for \$2.50. Address **W. HARNER,**
5d 411 Eighth St., MANISTEE, MICH.

In responding to this advertisement mention GLEANINGS.

I HAVE 80 ACRES OF CHOICE FRUIT LAND within half a mile of Sweetwater Dam station, which I will sell in alternate 5-acre tracts at \$30 an acre, cash; no irrigation required. Address 5d M. S. ROOT, Box 711, San Diego, or call at the ranch.

SECTIONS AND FOUNDATION CHEAPER THAN EVER.

Sections Only \$3. Dealers write for special prices. Free samples and price list. 1-2db
(Near Detroit.) M. E. HUNT, BELL BRANCH, MICH.



Vol. XVII.

MARCH 1, 1889.

No. 5.

TERMS: \$1.00 PER ANNUM, IN ADVANCE;
2 Copies for \$1.00; 3 for \$2.75; 5 for \$4.00;
10 or more, 75 cts. each. Single num-
ber, 5 cts. Additions to clubs may be
made at club rates. Above are all to
be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS
than 90 cts. each. Sent postpaid, in the
U. S. and Canadas. To all other coun-
tries of the Universal Postal Union, 18
cts. per year extra. To all countries
not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES. NO. III.

DISTANCE APART.

IF you have only one apiary, you may not feel greatly interested as to the proper distance at which to locate apiaries but when you come to locate your first out-apiary, you will give the matter at least a little thought, but only so far as to feel safe that the two apiaries shall not seriously interfere. When, however, you contemplate any thing beyond the first out-apiary, the thought will likely occur that you do not know just where the limit may be, and that you may as well plan quite a little ahead, and then you may become intensely interested to know just how far apart a series of apiaries should be planted. If the field is all clear to an indefinite distance, you can plant them ten miles apart and feel easy; but then the distance to travel from one apiary to another would be quite a serious matter. So the thing you will be interested to know is the least possible distance at which they may be planted without interfering much, for a little interference at the outskirts of each range, where the flight is longest and the bees fewest, will be more than compensated by the shorter journey from one apiary to another. Just exactly what is the largest profitable range to allow an apiary, and the most profitable distance at which to plant a number of apiaries, is probably known to no one, and it is not likely that any one will ever have positive knowledge about it.

On planting my first out-apiary I supposed I

should have it about five miles away; but as a matter of convenience I made it three, and I have gradually come to the conclusion that three may be about right—a conclusion that is confirmed by the experience of others. I asked my friend Capt. Hetherington, "About what is a fair distance apart for apiaries?" He replied, "Our own are located at about an average distance of three miles. In locating we are governed in a measure by the lay of the land—the bees will make longer flights, and gather honey to greater advantage, when they follow the valleys. I think few bee-keepers appreciate the importance of this consideration." I confess I never thought of it before, and I have no doubt the captain is right.

P. H. Elwood gives an answer that does not conflict. He says, "I think about three miles. It depends somewhat on the lay of the land. I have an apiary two miles from home, in a parallel valley. Hetherington has one a little less, on the brow of a steep hill."

In addition to the "lay of the land," other considerations may have something to do with the matter of location; but in order to get at a general rule we will consider the country a dead level, uniform in every respect. The first thought may be to plant an apiary first north, then south, then east, then west. That will not do. It must be remembered that the range of flight from an apiary is in the form of a circle, not a square. In the next issue we will speak of this same matter further.

Marengo, Ill.

C. C. MILLER.

HOW DO BEES RIPEN HONEY?

FRIEND DOOLITTLE GIVES US THE RESULT OF HIS OBSERVATION, AND DRAWS SOME CONCLUSIONS.

A FEW days ago a friend called in, and, while talking about bees, honey, etc., as most bee-keepers will when they get together, he said to me, "What do you think of the idea which some advocate, that bees can not properly ripen their honey when it is stored in deep cells or in old comb?"

I replied something like this: That I did not think that the advocates of such a theory had any solid ground to stand on in advocating it; for, unless I am greatly mistaken, bees reduce their thin nectar, as brought in from the field, in just the same way in this, the nineteenth century, as they did thousands of years ago, before each bee-keeper had a sheet of foundation to place in a section so that they might have it all so handy for the heat to pass over shallow combs. If nectar can not be properly evaporated in deep combs, what have the poor bees done all of these thousands of years, previous to the advent of foundation, to get their honey fit to live on after the first year in which they built their combs, as at that time they had their new combs to build, so of course had shallow cells. Then how comes it that, as a rule, we find a much better grade of honey in old hives in the fall of the year than we do in hives having all new combs? for every bee-keeper whom I have ever talked with on this subject has been free to admit, that the best honey he ever ate came from combs which had been in the hive for some years. It seems to me that the reason for such a theory about shallow cells ripening honey better than deep ones has been sprung on the public from an ignorance of the principle by which the bees reduce their nectar to the thick honey which we find in all hives after it is sealed. Honey is so manipulated by the bees, that the change from raw nectar to thick honey comes through the manipulation rather than by its being stored in shallow cells; hence the depth of the cell in which it is stored has nothing to do with the matter whatever. Let us look inside of a hive during a large basswood yield, and see if we can not learn something. It is now 2 o'clock P. M., and we find that, in handling the combs, if we hold them a little out of perpendicular the nectar will run out, while a sudden jar daubs things generally by the amount which falls from them. When we handle the brood-combs, an examination will show us that, scattered all through the brood, are cells of this thin honey. If we now handle the sections, we find that, although they are nearly all unsealed, very little honey will run out of them, and none from the deeper cells, which are the ones from which it should flow, if there be any thing in the theory that honey evaporates fastest in shallow cells. Now come with me to this observatory hive. You will remember that, when we were here at 9 A. M., we saw every bee which came in with a load of honey give it to another bee, instead of putting it into a cell, as we are told that field bees do. You will also remember, that these bees which took this nectar from the field bees seemed to hold it, for we saw very few of them putting their heads into the cells. Now we see them taking the nectar the same; but instead of holding it as before, we see these inside workers putting their heads often into the cells,

and find honey in the midst of the brood the same as we did at the other hive, while at 9 A. M. these same cells were empty. By this you see that as long as the young bees could hold all of the nectar gathered by the field bees, they did so; but when more honey than this came in, these young bees were obliged to place it in the cells, and in doing so they used the empty cells in the brood-combs first, which are scattered around among the brood; while if they are still further crowded they will next use the store comb; and when the rush of honey is very great I have known them to put it in an empty comb outside of the hive, in some instances where I left such a comb by carelessness, near the entrance. Night comes on, and we light a lamp and go to our observatory hive. Now lie down in such a position that you can keep steady for quite a length of time. Do you see those bees which are facing this way, yet hanging by their legs to other bees? Do you see them straighten out their proboscis and draw it back again? and do you see that drop of nectar sparkle in the light when the proboscis is thrown out? What do you suppose they are doing? Suppose I tell you that they are only allowing the heat to pass over shallow cells, so that the nectar may be ripened, will you believe me? No, you would not. Well, what are they doing? for you see that all of the bees thus hanging are at this kind of work. Oh! it has just come to me. These are the "loafing bees" we hear so much about, which always hang around in all of the pretty lounging-places which are left between the combs and between the ends of the frames and the hive, which the advocates of closed-end frames tell us about, which should not be; at least they say so. Well, joking aside: These bees are evaporating nectar in the good old-fashioned way, just the same as they did it when Adam and Eve dwelt in a garden, when God pronounced all of his works good, and it doesn't matter how much you try to help them by giving shallow combs, for they will always do it the same, just to be contrary, I suppose. Now, come to this hive which has sections on, closed up at the sides with glass. Don't you see the same thing going on here, only to a far greater extent? Many a night have I lain by the side of a hive, witnessing the bees thus reduce the thin nectar brought in during the day, so that it would be fair honey in the morning. Don't believe it? Well, what are they doing then, and what is the reason that, in the morning, before any more nectar of any amount comes in, none will jar from the combs as it did yesterday afternoon? and why do we see plenty of young bees putting honey in the cells in the morning, which honey is of very fair consistency, when none at all is coming in from the fields? We must account for this in some way, and I firmly believe that the process which we have seen is the way the bees have of reducing their nectar to honey. Of course, the heat of the hive has much to do with it, for, as the nectar is thrown out on the proboscis, it needs heat to carry off the particles of water, which more readily float away from these small drops of honey which are being thus stirred over than would be the case were the whole mass in cells, whether deep or shallow. Now come into my honey-room and see if you can tell which sections were full of comb when put on the hive, and which had only foundation in them. What! can not tell? Neither can I, except as the sections in which the combs were are seen to have a little

more propolis on them; and after years of careful watching I fail to see any difference as to which will grow watery, or sweat the quickest; and I know that I can get one-third more honey from a hive having comb supplied them than I can from one which has only foundation. All will sweat if the honey-room is damp and of a low temperature, while all will be growing better if the room is kept right. Reader, while the above is not well written there is more truth than poetry in it.

G. M. DOOLITTLE.

Borodino, N. Y., Feb. 18, 1889.

Friend D., it is very certain that bees do, during the night time, get rid of a very large amount of water contained in the nectar as it is brought in from the flowers. When the hive is large, and the colony very populous, with the cracks and joints all closed, so there is no ventilation except at the entrance, I have seen a pool of water collect around the entrance on the alighting-board, sufficient for the bees to fall into when they started out in the morning. This occurs especially after a cool night, so that the alighting-board becomes so cold as to condense the moisture from the warm air that is blown out of the hive by the ventilating process. Now, although it may be true that the bees do evaporate a large amount of water from their nectar by the process you mention, I can not think it is *all* done in that way, because the sheets of new honey, nearly ready to cap, oftentimes look like the surface of a liquid, only the contents of each cell present a convex shape, so as to look like a lot of beads laid in a tray. Arranging the honey in this way offers such a facility for rapid evaporation that I can not but think that this is a part of the process, and I can not see how they can operate in the same way where the cells are too deep. In old box hives we sometimes find cells two inches deep or more. I think it is pretty certain that such combs are not profitable; for if, during a great flow of honey, comb of two inches should be filled with raw nectar, what an amount of labor it would be to evaporate it, no matter which way the bees did it, compared with sheets of ordinary worker comb! The old honey you speak of, found in old box hives, I have always supposed owed this fine quality to its age, while the honey in new combs or shallow combs is almost always of the previous season's storing. Had you attended the conventions where this matter of partly filled sections was discussed, friend D., I hardly think you would be so severe on those who have had an experience different from your own. Old veterans, who sell honey by the ton, even such men as friend Elwood, said, if I am correct, they were obliged to call all honey second grade that was made from sections partly filled out the year previous. Of course, a good deal depends on how much difference between first and second grade in price. Now, I think the best way to get at the truth of this matter, especially as it is one in which doctors disagree, is to get as many testimonies as we can in the shape of reports from those who have experimented carefully. There are several reports in this issue. I am sorry to say that a good many of them have not

tried *both* ways, and at the same time been careful to use a few partly filled sections in every hive by way of a decoy, to induce the bees, especially *Italians*, to go above and store promptly. See the report of C. B. Jackson, in this issue.

W. Z. HUTCHINSON

AS AN EARLY GLEANINGS CONTRIBUTOR.

IN GLEANINGS for Dec. 15, among other biographical sketches was that of the subject as above. The portrait was a wood-engraving. Since that time, friend Hutchinson has had one of those Ives reproductions made from a recent photograph, for his own paper. As this is much superior to the wood-engraving found in our biographical sketches, we take pleasure in reproducing it here.



*As ever yours,
W. Z. Hutchinson.*

Friend Hutchinson began to write for GLEANINGS a few years after it started, and as he grew up, so to speak, with this journal, we feel more than an ordinary interest in him, and a few additional facts concerning his career as a writer on apicultural subjects will perhaps be of interest. The first item from our friend which appeared in GLEANINGS print will be found on page 247 of the volume for 1877. This was only a short note expressing his pleasure over an extractor we sent him. The next we see of him in print—at least in the pages of GLEANINGS—is in our issue for Jan. 1st, 1878. At this time he began a series of articles full of his “experiences.” These were

so valuable to the general bee-world that we decided to make them the leading articles of the subsequent issues. His intense personality shines from every one of these letters. Beginning in bee-keeping early in 1877, with four colonies, we find he made his bees pay for all such improvements as the growth of the apiary seemed to necessitate. As he was paying for a home, he had no money to spend on "improvements." Most of the necessary fixtures, he contrived somehow to manufacture for himself. All this he described in his early articles. To illustrate how he worked with his bees, and how he economized, we copy from one of these early papers, found on page 391, of 1878. After one year of real experience with bees, he says at the close of an article:

A SORT OF "HOME" PAPER.

I am a young man who has just bought and partly paid for a small farm. We, wife and I, are working hard to finish paying for our home; and we sometimes have to "figure pretty close," in order to obtain my "bee fixings." For instance, I had long wished for the back volumes of GLEANINGS, but had never seemed to have the money to spare to buy them; at last, however, by going into partnership with a neighbor, and earning my half by getting up a club, they were obtained.

In spite of financial difficulties, under which I commenced bee-keeping, I have prospered in it exceedingly well; perhaps my love for the business has had something to do with my success. I sometimes wonder if I do not think too much of my bees. For instance, I wore a suit of clothes last spring until I was ashamed of them, in order to save money to buy a swarm with an imported queen. What do you think, Novice? Do you think it is possible for a bee-keeper to be too devoted to his business?

And there is one thing more that I would like to ask Novice, and that is, don't you think it is a good thing for some of us enthusiastic young bee-keepers, that we—well, haven't any bank account? If we had, we would probably buy a whole lot of bees, all the "modern improvements," and then—why, then go into "Blasted Hopes," to be sure.

There, my first year's "experience" is finished, and if it has helped any one else in their "first year's experience," it has "fulfilled its mission."

These articles continued to be the leaders until 82 consecutive numbers were issued, ending Dec. 1, 1886, with perhaps two exceptions toward the close of that year. From this time on, his name occurs only occasionally, and finally dropped out altogether. During this time he wrote more or less for the *American Bee Journal*, *American Agriculturist*, and the *Country Gentleman*. Jan. 1, 1888, he started a bee-journal for himself, entitled the *Bee-Keepers' Review*. It is hardly necessary to explain the features of the *Review*, as most of our readers, if not all, have been acquainted through our advertising columns.

GOLDEN COREOPSIS, OR SPANISH NEEDLE.

63½ LBS. OF THIS HONEY AS THE PRODUCT OF ONE COLONY IN 6 DAYS, AND 202½ LBS. FROM 43 COLONIES IN 10 DAYS.

THE above name is now to be seen on many labels that adorn my buckets which contain honey gathered from coreopsis, or Spanish needle. I have added the word "golden" to embellish the name, as it were, and to give it a better send-off. Do you not think the name appropriate?

Something over a year ago I wrote a letter for

GLEANINGS, claiming that the honey gathered from this plant is superior to that produced from other fall flowers, and that it should rank among the very best grades, and command the same price in the markets as clover and linden honey. My peculiar location has, fortunately, placed me in a position to pretty thoroughly understand the nature of this plant, and the quality of the honey it produces. Located at the foot of the bluffs of the Illinois River, there is a broad expanse of low marshy lands to the east and south, from three to five miles in width. These lands are subject to overflows from the river once a year, which usually take place in early spring. This renders a large portion of the soil unfit for tilling purposes; and the consequence is, the Spanish needle has secured a permanent foothold, almost to the exclusion of all other plants; and early in September they begin to open their beautiful petals, and in a short time whole districts are aglow, and their dazzling brilliancy reminds one of burnished sheets of gold. It is now, should the weather prove favorable, that the bees revel in their glory, and the honey comes *piling in*; and the beauty about this kind of honey is, it needs but little "boiling down," and the bees no sooner fill their cells than they are cured and ready to seal. This is one great advantage, and saves the bees lots of labor, and makes the storage of honey more rapid. I had one colony of bees that stored 63½ lbs. of honey in six days; another one, 86 lbs. in nine days, and 43 producing colonies netted me 202½ lbs. in ten days—an average of 47 lbs. to the colony. This honey, though not quite as clear as clover or linden, is of a golden hue, exquisite flavor, and very fine body, weighing fully 12 lbs. to the gallon, and, as previously stated, I can not see why it should not rank in grade and price on the market with clover and linden honey.

So far as my market is concerned, there is no honey so universally liked by the consumers as my "golden coreopsis"; in fact, not one word of complaint has ever come back to me from this honey, save one. A neighbor ceased buying it; and when questioned as to why, he stated, "My children eat it up too fast." I am now running a peddling-wagon, and my salesman states he can sell more honey going over territory he has previously canvassed than to hunt up new routes. This certainly speaks well for this kind of honey. I have sold over 4000 lbs. in my home market this season, and the demand seems to be on the increase; and I believe if apiarists will locate their bees so as to get the benefit of these large areas of coreopsis they will not only be conferring a boon on their fellow-man, but will reap a financial reward for themselves. Another word in favor of the coreopsis honey: It is less inclined to granulate; and at this date there is but little sign of granulation, while my two barrels of linden honey is as hard as New Orleans sugar.

J. M. HAMBAUGH.

Spring, Brown Co., Ill., Jan. 21, 1889.

I believe you are about right, friend H., in regard to the Spanish-needle honey, although with us it does not go off like basswood and clover. I do not suppose that anybody will think of planting Spanish needle, but we can certainly do as you say—move our bees to great swamps and marshes, where may be found acres upon acres so full of bloom as to make it appear as if the ground were covered with snow, said snow

being of a bright yellow instead of white. In traveling on the cars I have frequently witnessed these great masses of bloom, and at times it fired me with enthusiasm to get some bees and set them close on the margin of these swampy wastes. I did it once at the foot of a lake near us. The bloom was not as full as you have described, but the bees built comb and stored honey right away, when those that were left at home were consuming stores and doing nothing. Now, then, who knows where there is a big patch of Spanish needle? and will you make preparations to move your bees near it, when the time of bloom comes?

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

THE old artificial-honey dodge has come up again; but as the author does not put any date on his circular, we can't tell whether it is old or new. The circular commences: "A work of ten years just completed! A fortune for you—will you take it? World's wonders; or, how to obtain riches!" There are thirty or forty secrets advertised for getting rich. The only one which concerns us principally, however, is the following:

ARTIFICIAL HONEY.—Equal to bees' honey, and often mistaken by the best judges to be genuine. It is palatable and luxurious; costs 8 cents a pound to make, and will sell for 16 cents per pound, while the bees' honey sells from 25 to 35 cents. Agents make money fast by selling the recipe to boarding houses, stores, and private families at \$1.00 each. In average territory you can easily sell ten recipes a day for \$1.00 each, \$10 clear profit. One agent writes: "I average a recipe at every sixth house."

"Luxurious," no doubt, and costs only 8 cents a pound to make. It happens, however, that *good honey* has been sold in considerable quantities until quite recently at 8 cents per pound; but bees' honey does not sell, nor has it sold for from 25 to 35 cents a pound, for years. The swindling sheet referred to contains on one side in big letters, the address of L. W. Lincoln & Co., 89 Aberdeen St., Chicago. I hardly need tell our readers that this is only a rehash that has cropped out every now and then for at least 30 years. When I was in my teens I sent a dollar in answer to a similar advertisement, and obtained a recipe for making artificial honey, and another one for silver plating, and something else thrown in. All such offers of valuable recipes for a certain sum of money we may safely pronounce humbugs and swindles. All recipes of any value may be obtained in our recipe-books; and a dollar nowadays pays for a pretty good-sized recipe-book. L. W. Lincoln & Co., aside from offering recipes, offer to sell their agents county rights at the very low price of only a dollar for a county. What *right* have they to give *rights* to certain counties, pray tell? A search through Dun & Co. fails to find any L. W. Lincoln & Co. in Chicago at all. No doubt, however, somebody is on the watch for the dollars when they come in for the secrets or county rights.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

PERMIT me to call your attention to the inclosed article, which I clip from an Eastern paper.

E. H. BARTLETT.

Mt. Vernon, O., Jan. 3.

I will explain to our readers that we wrote to friend B. at once, to give us the name of the Eastern paper containing the clipping. As he has not done it, or, at least, we have not received it at the present writing, Feb. 18, we give the clipping below:

BOGUS HONEY.

During the year 1865, or thereabout, I was walking on the streets in Baltimore, Md., and my attention was called to what appeared to be a beautiful specimen of Vermont honey, packed in boxes, and of the most beautiful clear liquid in the cells of white-looking comb. It attracted the attention of every one at the time, as the nicest honey that had ever been in Baltimore. But some time afterward it fell into the hands of an analytical chemist, who found out that the comb was made of paraffine, and the liquid of glucose syrup (made out of corn starch). The paraffine was made in imitation of the honey-comb, by some mode of pressure, by models prepared for the purpose, and the liquid glucose syrup had been made to fill the cells. Paraffine is now prepared from the refuse products of petroleum, when it is being refined, and the market is controlled, absolutely, by the "Standard Oil Trust," who can well afford to let it go on the "free list," as there is much more made in this country than anywhere else. This substance is like the most beautiful white wax, and makes candles like the purest spermaceti. I commend it to the attention of the committee having in charge the matter of "adulteration of food," etc., as I believe the ingenuity, sharpness, and invention, quite equal, if not superior, to that presented in the wooden nutmeg and the maple hams made in Connecticut.

Respectfully,

PAUL PRY.

I suppose I hardly need tell our readers that we are prepared to pay "Paul Pry", or any other man who will show us the above-described operation going on, \$1000. The whole story about the analytical chemist is false from beginning to end; and if any of our readers can help us to hunt up the author of these falsehoods, we will hold him up to the gaze of every man; and we ask every friend who has seen the above in any paper, to carry or send the editor a copy of this issue of GLEANINGS. We will furnish you as many numbers as you want. If the editor who has given place to the above will not recant, we want the privilege of holding him up to the gaze of every truth-loving man or woman.

Here is another:

Here is another crank. What shall we do to stop this nonsense? There ought to be a law to protect bee-keepers.

M. S. ROOP.

Council Bluffs, Iowa, Feb. 11, 1889.

A NEW SWINDLE.

The *Democrat* says a new swindle is said to have been discovered at Oskaloosa, by a woman coming in a drug-store and buying a half-ounce of "attar of roses"—a butyraceous oil of delicious fragrance, which separates itself from the rose-water during the distillation of dried petals of roses. A reporter heard this order, and his curiosity became strong as to why she should want so much of this expensive oil—retailing at from \$10 to \$15 an ounce. After much investigation he found that she used it in

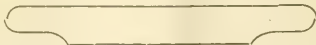
the manufacture of "pure" honey. Syrup made of the proper consistency and color—an easy undertaking—with enough of this oil added to give it flavor, an article in all appearance, smell, and taste, so closely representing honey as to fool the most expert, and thus at a cost not to exceed 3 or 4 cents per pound to the manufacturer, this bogus honey is sold in this market as straight, pure strained honey.

Now, friend R., why didn't you tell us what paper you found the clipping in? We gather from the reading on the other side that it is a temperance paper, and the temperance paper seems to indicate that some Democratic paper first started the lie. I hope all good Democrats will help us to hunt up and straighten out our Democratic brethren. It is pretty clearly evident that some wicked sinner in the shape of a reporter is writing these things up; and the publishers of the papers he sends them to are foolish enough to believe them, and perhaps pay him for his sensational scares. Another thing, this statement is a slur on the character of all womankind. Think of a woman buying attar of roses to humbug the public! Then, again, the statement shows falsehood on the face of it. The idea that attar of roses, added to syrup of the proper consistency, should make it smell and taste so like honey as to "fool" an expert! No doubt there were fools around about that time, but I am sure it was not one of the fair sex, nor was it the general public at large that were fooled or humbugged by any such mixture. Now, friend R., may we trouble you to take this, or to send it to the editors of the paper from which you made the clipping, or the Democratic paper that first published it? Let us trace them back to the fountain-head, and get at the seat of the mischief if we can.

CARRYING BEES INTO THE CELLAR.

S. I. FREEBORN'S METHOD.

WE think we have a simple device for carrying bees into the cellar that will rather surpass friend Miller's rope. It is what we call a hand-barrow, made of two boards about 6 ft. long and 1 ft. wide, worked down to handles at each end, of the right size to be convenient to take hold of with the hand, some-



thing like this. To these we nail cross-pieces, making our barrow of a convenient width to set the hives on crosswise. This will hold three hives, but the number can be gauged by the weight of the hives and the strength of those carrying them. Some of the advantages of this kind of a barrow are, that, having the weight on the hands and arms, enables one to humor the motion, and prevent sudden jars that we could not prevent with the hive held firmly against the body, as we have to where we carry a hive alone. Its advantages over the wheelbarrow are, that it jars less, and you can get in and out of places that you could not with the wheelbarrow, and that, in the event of bees crawling out, they are not so apt to annoy us by crawling up our sleeves and other places where we do

not want them; and, also, we can keep the hives level while taking them in. This is quite a consideration when recently fed, as the added frames would likely be loose.

We noticed here the same thing that our friend Miller did at his place—that the bees did not frequent the grapes the past season nearly as much as usual. We think one reason for this lies in the fact that it was a very dry year, and fine for grapes. The weather was so favorable that very few cracked or burst their skins. May was a very cold month, and no doubt killed off a large per cent of the queens, or mother-wasps, making that insect very scarce, to the benefit of the grape crop. The little round holes spoken of, made with such regularity in the grapes, we have lately attributed to a little brown sparrow. We have not seen them in the act, but have frequently frightened them from the vines. On examination we found grapes freshly punctured. It seems to have been done by something with quite a long bill, and strength to use it.

Ithaca, Richland Co., Wis.

S. I. FREEBORN.

MY VISIT TO CALIFORNIA, AND SOME OF MY MISTAKES.

A. I. ROOT TAKEN TO TASK BY HIS FRIENDS.

M. R. ROOT:—You owe a big apology to the bee-men of Santa Barbara. After I and others gave you an invitation to come here you sent a note accepting our invitation. I put right into the city, saw two of the prominent men in the business, told them to work the thing up for your reception, spoke to one of the aldermen to take you by the hand, and show you around the city, to see our fine public buildings, water and electric works, etc. I went home, filled our larder with the good things of this life, hired an invalid (for I was busy) for one month to see that the cart and buggy were well oiled, and the horses well fed, so that, at a moment's notice, you could be run out to any point of interest; kept the best room in the house tidied up, and even the organ tuned up, all for your reception, and only to come to Ventura, and then turn back, when one hour's ride (4 bits) and an apology would have been satisfactory. My reason for not writing sooner is, I was so mad I was afraid I might say something unbecoming. I could not bear the looks of the paper, as it would bring the thing up to my mind so vividly.

J. N. GILCHRIST.

El Montecito, Santa Barbara Co., Cal., Feb. 24, '89.

Now, old friend, I am about as mad as a bee-man ever gets, I guess. You have been to California, and did not come to see me. Well, did I ever! I sat up two nights, and slept three days with my boots on, expecting you to come, but you did not. But I am glad you had a good time, and returned safe home to your family and business.

Dehesa, San Diego Co., Cal.

A. W. OSBURN.

Dear friends, if it would do any good I would sit down and have a good cry over my blunder in not meeting either of you. You see, I had no comprehension of what an awful big country California is. Besides, when I started away I was a good deal disturbed and perhaps somewhat excited. I

took along quite a number of letters, and fully intended to take both of yours. After I started I did remember your kind invitation, and my promise to call on you; but I knew so little of the names of the places that I could not remember very much about it. When I stated the matter to friend Wilkin he said you would doubtless all be at the bee-keepers' picnic he had planned, and that he sent invitations through the beemen in the vicinity. Well, you were not at the picnic, and I had made arrangements so that my allotted time was up and more too; and before I knew it the time had gone by. Mr. J. S. Harbison did tell me, the night before I left San Diego, that I could not very well go without seeing Mr. Osburn; but arrangements were then made so that it was next to impossible; and friend Wilkin did tell me that I surely ought to visit Santa Barbara before I went home. Please forgive your old friend for his awkwardness this time, especially when he tells you that he is now planning another and longer visit, and this time Mrs. Root is going. She is pretty sure she can not follow over all the mountains, but possibly we can leave her to visit with some of the women-folks while we do the climbing. Won't this do, friends G. and O.? Please don't feel mad any more.

CELLAR WINTERING.

LOSING BEES IN LOCATING ON NEW STANDS.

THERE is one thing that has always been a wonder to me in my experience in keeping bees; that is, how they are carried around and piled up in cellars, like so many potato-barrels; carried out again some warm day for a fly, then packed back again in the evening and ricked up, and not one word about losing bees in all the years I have been reading bee-papers. My experience since I have been in the business is, that if I pick a hive up and carry it to a new location—no difference if it is from 4 ft. to 300, quantities of bees will go back and cluster around in lit, the bunches, apparently lost entirely. Night coming on, I have often, out of pure sorrow for the little fellows, put back the hive in its place, to see them apparently made happy. Now, is that unnecessary sympathy in me? This may be very unimportant, as there seems to be so little said on this point; but I tell you, it is something to me. I have invariably, in moving my hives, had to move them little at a time, and tole them, as it were, till I got them where I wanted them. Is that unnecessary? I used to think instinct taught them to follow their queen; but I've learned better.

Now, the case in point is just this: I had two hives set off by themselves (for convenience and room), say about 3 rods. I moved them back to the main apiary in November, to pack for winter. They had not had a fly for about five weeks, which proved to be rather chilly in the evening. I was not at home; but when I came, my wife asked me what the matter was with my bees—they had been swarming around that new place till dark, and great piles of them were clustering on the fence and shed. The night was cold and windy, with some rain. I looked after them as soon as I could see, to find what hadn't blown away of them; but

bunches and piles were huddled together dead, on posts, fence, roof, and everywhere. Now, am I to expect such losses, and let those that hadn't sense enough to go home out of the rain take the consequences of their own folly, and think nothing about it? or am I to blame myself for part of it?

If this is not important enough to notice in GLEANINGS, a word from you will suffice; but I want light on the above subject.

By the way, friend Root, I am an old Californian, having crossed the Great American Plains in 1852. I should really like to have a good talk with you about experiences; but I am rather surprised at a man of your cloth, at this late day, lying out in barns and sheds at night with strangers, even sleeping with them—deaf ones at that. I have been put to the necessity of slipping off by myself to the mountains, and building me a fire to keep off grizzlies, to put in a night when I couldn't do better; but I wouldn't have trusted any strange man, for fear he would have killed me for my boots. At some future time I should like to compare notes with you, if you like. Let me hear from you.

S. DANIELS.

Pine Grove, O., Feb. 7, 1889.

Friend D., if you will turn to page 81 of our issue for Feb. 1 you will see that our experience is just about like yours. I do not believe in moving bees, any more than you do, and that is one reason why I made the chaff hive to be a permanent home for each colony. When I want to move a colony, one that is in a chaff hive, I take as many combs and bees as I want, and start a nucleus in that chaff hive with the bees that returned to their homes—that is, where I want to move bees short distances. —You must have forgotten that I said the man I stayed with in the barn got out his old well-thumbed family Bible, and read a chapter before we went to bed. You see, that made us not only well acquainted, but brothers, and so I was not "away off among strangers" at all.

THE NAMELESS BEE-DISEASE.

A MALADY WHICH IS WORKING HAVOC IN A CALIFORNIA APIARY.

FRIEND ROOT:—I am somewhat in the frame of mind the man in the A B C was whose hopes were blasted, and thinks of emigrating. Some of our bee-men here wish me to state the case, as they are somewhat anxious.

Last September I began to notice that my bees were dying, a whole swarm going at once, seemingly. It was toward the last of my run of honey, and pretty hot weather. In the course of a month, 10 or 12 swarms had gone, some of which were full of honey at the last extracting. In December some 50 more died, and at this writing another hundred is added to the list of dead. The brood-combs, as a general thing, are left clean of brood, with the exception of some dead at the advanced stage of growth, where the bees had begun to gnaw out, or have the head out. The mature bees seem to have what you term dysentery, voiding the yellow excrement. The abdomen is distended, and sometimes filled with white or almost transparent fluid. The bees fall in a pile at the bottom of the hive; in fact, your description fills the bill, except as to the con-

dition of the weather. The past month, when the decline was so rapid, the weather was cold and foggy much of the time. Some swarms, which have pulled through to the present, with a handful of bees, are now raising some healthy brood, only a little, of course. As I remarked at the time the bees began to drop off, the crop of honey ceased to come in, except in a few colonies which continued to work later, and up to the time that other apiaries suspended. I note what you say about aphides, and would remark that honey-dew is secreted at the season of which I write. The swarms which pulled through so far are those which worked the longest, and evidently obtained their stores from other sources. Now that the weather is warm, these are robbing from deserted hives, and putting it in the brood-nest; and that, added to the fact that a few combs placed in another apiary to feed upon do not seem to have any bad effect, is still more of a puzzler.

So far as I am able to learn, the trouble is local. Others are not losing any more than the usual percent. Whether this is the opening of some pest on the honey crop, or whether it is a special or local cause, remains to be seen. I have feared that it might be in connection with my water supply. Ditch water failing, I resorted to tubs made from barrels in which I tried to make vinegar; but owing to inexperience I made it too strong of honey, consequently obtained only a worthless alcoholic slop. These were, of course, washed out and frequently filled, and were in use about two months or more. It was after the removal of running water and dew that the greatest fatality commenced. You will notice that it did not affect all simultaneously, but skipped here and there. My hives are set directly upon the ground, as do many in this community. I shall make an effort to build up again, and should like to use these combs. Do you think it safe?

Bee-men here feel that you made a mistake in passing by Kern Co. Although we are not so noted as our southern neighbors, nor as good and virtuous, yet we have taken the first premium for three successive years at the State Fair, and have several thousand stands of bees. If you had called you would have seen things equal to motor roads and Sweet Water Dam, though of a little different nature, and probably "sold the boys something to-day." Our own personal trade will, under the circumstances, be small; but our neighbors exported something like 150,000 lbs. of comb honey last season. One of them told me he had ordered \$1000 worth of supplies already.

I should be glad of your opinion on the problem I present, as my experience is limited, and this misfortune comes at a time when it falls exceedingly heavy.

W. A. WEBSTER.

Bakersfield, Cal., Feb. 4, 1889.

Friend W., taking all things into consideration I am inclined to think your bees were killed by drinking the water in those tubs. You may remember that my carp were killed by putting them over night in a barrel that had been used for pickles. The barrel was washed and rinsed, but there was vinegar enough in the wood to contaminate the water. When I first commenced reading I decided that your bees had got hold of some poison—probably the effects of Paris green or London purple, used for killing insects in your vicinity. I would put

the water for bees in shallow stone crocks. Throw in clean pebbles or gravel to keep them from drowning. Perhaps you will soon have irrigation in your neighborhood, and that will fix the whole matter.—Yes, I made a good many mistakes in not visiting different locations and calling on all those good friends of mine. See what is said about it in another column.

HYBRID HELLEBORE, OR CHRISTMAS ROSE.

SOMETHING TO GLADDEN THE BEES AND TO GLADDEN YOUR DOORYARD.

WE extract from *L'Apiculteur*, of Paris, the following article, which we believe will be of interest to our readers, for whose benefit it is translated from the French by our proof-reader, Mr. W. P. Root.

Here is a modest plant, the blossoms of which are the first to make glad the bees when they make their first excursion from the hive during sunshiny spells. They get pollen from it in abundance. For this reason the Christmas rose should have a place in every bee-keeper's garden. It is very rustic in other respects, and is quite indifferent as to the nature of the soil. It is propagated either from the



VILMORIN'S CHRISTMAS ROSE.

root or from the seed. Whole basketfuls of hellebore may be found near clumps of trees. The regular leaf of this plant, of a dark green, issuing from the peduncle, constitutes a summer ornament. At the country residence of Ricquebourg, near Resson, Oise, France, the cultivation of Christmas roses in hot-houses requires a space of from 100 to 150 square meters. Every week during winter, the flowers are cut off and sent to Paris for the decoration of rooms. Hellebore, or Christmas rose, begins to blossom near Christmas, from which fact it derives its name, and continues through January and February, and even into March, depending on the rigor of the winter.

A small packet of seed, weighing 10 grammes, is sent free by the house of Vilmorin-Andrieux, 4 Quai de la Mégisserie, Paris, France, on receipt of 11 cts. to pay for packing. As the above firm solicits orders from America, I presume they are prepared to receive our postage-stamps; also to read communications in our language.

BEE-KEEPING IN SOUTH AFRICA.

CHAPTER II. OF A MISSIONARY'S EXPERIENCE IN STARTING IN BEE-KEEPING.

DEAR GLEANINGS:—In my first letter, published Dec. 15, I promised to send Chapter II. of my experience when I found time to write it; and that seems to be the present time. I told you that I had three boxes of bees (I do not feel justified in calling them hives) as the result of my capture of about three times that number of colonies of wild bees. Then I sent to America for "a good book on bee-keeping"—Langstroth's. I knew that bees were in the habit of sending off swarms; but these of mine, if they had ever swarmed, did it when no one was about. It was not possible for me to keep watch of them, and how was I then to increase the number of colonies? I read what was said about "artificial swarming." Ah! there is the solution of the difficulty. I determined that I would divide my three colonies and make them into six, and another year the six would become twelve, and a third year—but I will go no further. I believe I was to be contented with ten good colonies. Mr. Langstroth's directions for artificial swarming are very specific, but there were difficulties for which he had not provided. For one thing, our seasons are "the other end to." He talks about swarms in May; but that is when our winter begins. That is all the winter we have, if it is proper to speak of a winter where there is not even a frost. Then, again, he speaks of certain plants being in bloom, as the white clover, the basswood, etc., none of which we have. Of course, we have honey-plants, and, of course, bees swarm, and swarm when there is honey to be gathered; but what are the honey-plants of Natal, when are they in blossom, and when do bees swarm in a country so warm the year round that there is no frost? I did not think so much of these various conditions then as I did after I had tried artificial swarming. The directions were so plain that I felt sure I could succeed. Mr. Langstroth gives fair warning of the danger of failure, and of the need of going slow. But as people so often, when they hear a good sermon, give it to their neighbors, so I considered that these warnings were for those who did not follow the directions carefully.

I had about a dozen hives with movable frames made in the Industrial department of the school. This department had only just started, and the boys in the shop did not yet know much about using tools. I must also confess that it was my own fault that I did not get better hives. I did not think I could afford expensive hives, and so attempted to have some paraffin-cases made over into hives. Kerosene oil is called "paraffin," in Natal, and comes to us in tins protected by wooden cases. These cases, when laid on the side, are about the size and shape of an L. hive; but although they were cheap, it was a penny-wise and pound-foolish plan, as cheap investments so often are. The trouble was not that the hives retained the smell of the kerosene, but there were cracks and knots in them, and in time the cracks became wider and the knots came out. To make matters worse, I tried to make them into observing-hives, with a glass and a door at the back. I can see now how foolish it was; but that did not help any then. As some one has said, "If only our foresight were as good as our hindsight, how wise we should be!"

My hives were made and painted in our winter, so when spring came I was ready to multiply my three colonies into six. Formerly I had carried on my operations with bees at night; but now acting on a suggestion of Langstroth's, that whoever attempted to do any thing with bees at night was sure to repent of it, I determined to try the day for transferring and dividing my bees. I had made a bee-hat by framing a small glass and sewing it into a strip of mosquito-netting. Like many others in this country, we had the idea that mosquitoes abounded everywhere in Africa, and took out with us a large roll of mosquito-netting, which we never had occasion to use. My bee-hat was not a success. The moisture from the breath, condensing on the glass, made it little better than a piece of tin to look through, and the frame bumped against my nose and face rather disagreeably. I had bought a pair of weeding-gloves, which answered very well for bee-gloves. I see friend Root does not approve of handling bees with gloves; and I will confess that, when I saw the gloves covered with stings, and thought that every sting meant a dead bee, I felt very sorry for the bees; but my sorrow was tempered with thankfulness that the stings were in the gloves and not in my hands.

The day selected for operations was bright and hot, and the time about noon. Armed *cap-a-pie* we sallied forth; that is, I was armed; but the native boy who was to assist me was not. My unpainted boxes had become somewhat rotten by this time, and the bees had found numerous places of exit besides the one I had made for them. It was not an easy task to carry out the direction of the book—to close the entrance of the hive and remove it to another place while transferring. I might close one entrance, and the bees would rush out from half a dozen others. However, I thought I could manage it. My plan was to throw a sheet over the hive, lift it quickly from the ground while the boy grasped the ends of the sheet underneath the hive and twisted them together, and thus confined the bees. The plan worked beautifully until a stray bee made straight for that boy's eye, causing him to drop the sheet and run. Strange as it may seem, those bees were in a decidedly bad temper as they rushed forth to see what it all meant. I thought my armor was bee-proof, but soon found out my mistake, and ran to find out where my boy had gone to. The spectators all laughed, and this suggests a puzzle which might be offered by some enterprising paper as a prize puzzle. There is no copyright on it. Puzzle: What is it that is so funny in seeing other people stung? I do not ask this reproachfully. I have myself been in both places, and I laughed when I was a spectator, and didn't laugh when I was in the other place. At that particular time I was in the other place, and did not feel like laughing. I began to think the day was no better than the night for handling bees, and that Langstroth might have said, "Night or day, you will be sure to repent of it."

It will probably be thought that, under the circumstances, we postponed further operations to another day. Very likely that would have been the part of wisdom; but wisdom was an article we had not yet acquired so far as bees were concerned. I afterward learned that the principal object of bee-keeping was to acquire bee-wisdom. No; I did not wait till another day, but, readjusting my armor, I went back and tried again, and finally drum-

med the bees into a state of acquiescence to the inevitable. The comb was transferred to frames, and the bees were divided into two colonies. Previous to this we had moved out of the "bee-haunted" house into another not far away. I had there prepared a nice shady place for my ten colonies of bees which I was to obtain by artificial swarming. I had not then seen friend Root's plan of placing the hives on bricks, and filling up to the edge of the hive with sand. How the white ants would like that! They would come up through the sand and eat their way through bottom, sides, and top of the hives, leaving only a shell where there was a solid board. I had prepared a place by thinning out a clump of bush, and driving down posts of a native wood, a species of olive, so hard that even the white ants do not eat it. On these posts I nailed boards, and here placed the hives. It was a beautiful place, and it would seem as though any right-minded bees would settle down at once to good honest work, on finding themselves in such a home.

I fear that my bees were not right-minded; for the results did not justify the confidence that I had placed in them. I transferred and divided my other two colonies, or, rather, one of them, I should say; for as I was about to proceed against the other I found that they had just sent out a swarm which was waiting for me on a tree close by. I left the parent colony in their old box, and hived the swarm, removing both to my new apiary. So I now had six colonies, and I became ambitious to get ten. So I told the boys that, if they would find some colonies of wild bees, I would give them a sixpence for each one pointed out. I had some qualms of conscience at the time for offering so little, and some regrets afterward that I had given so much. I completed my ten colonies with rejoicings. Another year I would feast upon honey, I thought. But it is well not to count chickens before they are hatched, and not to eat honey before it is gathered. In another letter I will tell you what became of my ten colonies of bees.

H. D. GOODENOUGH.

Clifton Springs, N. Y., Jan. 23, 1889.

Friend G., you kept me uneasy during all your description, because I did not find anywhere that you spoke of using smoke. Why in the world did you attempt to do anything with bees until you first had given them a good smoking, according to the books? Even if one could fix himself up with gloves and veil, and every thing else that has been used, to make a regular bee-proof armor, I would by no means think of handling bees without smoking them. They will be pretty sure to find a break in the armor, and get through. Even if they should not, you will get them so furious as to attack passers-by and domestic animals; and I do not think that anybody has any right to arouse a colony of bees to such a fury as trying to handle them without smoke does; and this is one great reason why I object to gloves or veil either; better lose the time required to bring the bees into perfect subjection than to have them on the wing stinging right and left. When we throw away our veil and gloves, and carefully learn to judge by their behavior as to what bees will do, we soon learn to handle them with comparative impunity, even

when an inexperienced person would rouse them to fierceness; and we also learn the time of year and the time of day the bees can be handled safely and when they can not.

BEE-KEEPING IN UTAH.

FURTHER FACTS IN REGARD TO THE TERRITORY AS A HONEY-COUNTRY.

BEE-KEEPING in Utah, as far as I have been able to judge, differs but little from bee-keeping elsewhere. The hives and fixtures are about the same, while the pasturage seems to be more sure than in most places.

We almost always get some surplus, and it is generally through extracting too close that we have to feed. Of course, the crop varies with the season. If we have a dry season, and sweet clover is not so abundant, we have a light crop.

The hives used are of various patterns and dimensions. The Kidder predominates among the farmers and those not considered to be practical bee-keepers; while among good bee-keepers the Simplicity, Heddon, and what we call here the "Short Langstroth," or a frame that fits crosswise of a ten-frame Simplicity, is used.

The bees are a cross between the black and Italian, with a predominance of about two-thirds in favor of the latter, although we have had importations of other races at different times. Our best honey-gatherers are generally those that are considered a trifle cross.

Comb foundation plays a very prominent part here among practical bee-keepers.

The sources of honey are various, the most prominent of which, as I have before stated, being sweet clover, while the bees gather considerable from fruit-blossoms, alfalfa, wild flowers, etc. The surplus-honey flow does not generally commence until sweet-clover bloom, which begins about the first of July; and in most seasons it continues until the first of September, although the bees generally gather enough to live upon from the middle of April until late in October.

In a dry season we do not have to wait for the honey to get sealed, as it is pretty thick when gathered, therefore we can extract, generally, when the frames are full, which, in dry seasons, is about every ten days. In moist seasons which, by the way, are very rare, we have to let the honey get about a third capped. The honey taken in the above way candies in a very few weeks, and becomes very solid. It is then (with us) in a very good condition for shipping.

Comb honey is handled much in the same way as in other places. The T super seems to be, all things considered, the best adapted to our system of management.

In handling bees during the season, the minor points in management are as many (if not more) as the bee-keepers, while the main points are about as follows:

Along in March or April, according to the season, the hives get a thorough cleaning; all dead bees, dirt, broken combs, etc., are removed; the hives are straightened up, and the litter, etc., is raked up and carried away from around the hives; and if any bees are without stores, full frames from those that have plenty are given them.

In May, queen-rearing and dividing claim our attention. In June, the stocks are all built up, and every thing is put in readiness for the honey-flow; the supers are put on the last week in June or the first of July. In about two weeks extracting commences, and keeps up until the last of August, when the surplus-honey flow generally ceases. The supers are left on until about the first of October, to catch any surplus that might be stored, then they are taken off and the bees are packed for winter.

Bees are generally wintered in single-walled hives on summer stands, although chaff hives are used. Some give their bees considerable protection, while others consider it unnecessary.

The honey-market here is not the best in the world, as there are by far too many small producers; but I am happy to say that their ranks are weakening. Fruit-growers here look on bees as their friends, while the bee is considered the emblem of Utah. We hear very little about adulteration of honey, as it will not pay.

We have considerable trouble with foul brood, which is generally found in old tumble-down Kidder hives, but very seldom found in a well-kept apiary. In fact, I have never seen the disease, except in neglected apiaries. The foremost bee-keepers of Utah are young men, and you may hear of something from us in the way of bee-keeping, in the near future; but be that as it may, bee-keeping in Utah has come to stay, and I predict that, in a very few years, it will be quite a source of revenue to the Territory.

J. C. SWANER.

Salt Lake City, Utah, Jan. 24, 1889.

CARE OF COMB HONEY IN WINTER.

HOW MUCH DOES IT DETERIORATE IF PROPERLY CARED FOR?

A GREAT many honey-producers seem to act on the belief that honey is a perishable product, which must be placed on the market as soon as possible after it is secured. Just as soon as the honey is taken from the hives or at least as soon as cold weather is at hand, they make haste to ship it to commission merchants in some of the large cities, or to crowd it upon grocerymen of their own neighborhood, far beyond their immediate needs. Various evils result from this. In the first place, the markets are often so overcrowded that prices are forced down below where they really belong and would remain if more wisdom had been shown in disposing of the product. As it is, these impatient and over-hasty sellers often fix the price for the remainder of the season, causing loss not only to themselves but to others. The offenders in this direction are usually the small producers; but many large producers are not exempt from the same charge.

An objection that is perhaps more serious to this careless way of disposing of a season's labor is the fact that honey usually deteriorates very rapidly after it leaves the producer's hands. Comb honey may be kept from one season until the next, unimpaired in quality, but it requires some care and a proper place for keeping it. The producer ought to be able to supply these, while it is perhaps too much to expect of the dealer. The average commission store is a very poor place for storing comb honey, and many grocery stores are not much bet-

ter. It is almost needless to say to any honey-producer, that honey should always be kept in as dry a place as possible, because in a damp place it soon absorbs moisture, and becomes thin and watery. The surface of comb honey "sweats," or becomes covered with drops of moisture, and the nice white comb becomes dark and unattractive, owing to the increase in bulk of the honey in the cells. Sometimes the caps of the cells even burst from this cause, and frequently the honey undergoes a partial fermentation, and loses much of its sweetness. The honey in unsealed cells and broken places becomes so thin that it runs almost as readily as water when the comb is turned on its side, daubing every thing beneath.

All these results I have seen for myself. Once while making a tour of inspection among the commission houses of one of our large cities I came across a large lot of honey, the producer of which was known to me, and I knew that he had taken unusual pains that his honey might reach the commission merchant in the best condition possible. There it was, stored in a cellar which, with its damp, cold atmosphere, was of all places the most unsuited for the proper keeping of honey. At another place I found a large lot of honey in a room intended for the cold storage of butter and eggs. It was (or, rather, had been) an extra fine lot of honey, and the merchant was taking extra pains with it, as he supposed; but somehow, he said, it was not keeping well. No wonder. It was worth at least three cents a pound less than when it left the producer's hands. Some may see in this a reason why their honey sold for so much less than they expected.

This state of affair may perhaps be somewhat improved by a little missionary work among commission men; but the producer must expect to bear the brunt of it himself. In the first place, honey should be prepared for market by a thorough ripening. This is best done by storing the honey in a room which may be heated to about 100°, and kept at that temperature as long as desired. An oil-stove will be found an excellent arrangement for heating the honey-closet, or, if the closet is small and the weather not very severe, an ordinary large-sized lamp will answer. Neither of these will require attention more than once or twice a day.

This ripening process should begin as soon as all the honey is removed from the hives and stored away, and continue for several weeks. By this means the honey is thoroughly ripened, and acquires that rich pleasant taste so often remarked as belonging to honey which has been left in the hive for a long time. More than this, the honey in all unsealed and broken cells is evaporated down until it is so thick that it can not run from the cells. Any one who has ever handled leaky and dripping comb honey will appreciate the advantage of this. "Your honey is always so clean and dry—no stickiness about it," was the remark made to me not long ago by a dealer of considerable experience.

After the honey is once well-ripened it is scarcely necessary to keep the room at this high temperature, although it would no doubt be advantageous. Unless it is kept reasonably warm and dry all the while, it should be warmed up whenever the weather is very damp or very cold. If this is done, the honey will not attract moisture, nor crack, as often happens in very cold weather. If proper care is taken in regard to temperature and dryness, comb

honey may be kept in good condition for an indefinite time.

I hope I shall not be thought egotistical if I remind some who have written of this plan as if it were their own, that I was the first to recommend artificial heat for ripening comb honey. "Honor to whom honor is due." Surely, brethren, it does not cost much to give proper credit for an idea.

After you have your honey in good condition for the market, do not ship it off to commission men in large lots unless you are sure it will receive proper care until it is sold. Keep all who handle your honey, whether commission men or retail dealers, constantly supplied, but let their stock on hand be gauged as closely as possible by the running requirements of their trade. Any amount beyond this is safer in your own hands. J. A. GREEN.

Dayton, Ill., Jan. 30, 1889.

Friend G., I can attest to the truthfulness of every point you make. I have seen comb honey after it had been kept a year or two, and we have had some experience ourselves. I am pretty sure it will pay the owner to examine and fix up any honey that is held over a year or two on commission.

THE SILK-MOTHS OF AMERICA, ETC.

PROF. COOK DESCRIBES THEM.

MISS EVA M. WATROUS, Lake, Mich., sends in a *strong tin box* the cocoon of one of our largest silk-moths—*Lelea polyphemus*, or cocoon of the oak-tree silk-moth. She says, "We found it on a lilac, under an oak-tree. Mother thinks it comes from a long 'worm' which feeds on the oak."

Bless these mothers! They are usually correct. The lilac-bush grew close beside an oak-tree. The teacher, she says, said it was a tomato-worm. Bless the teachers! but, as this shows, they are not always correct. Miss Eva closes with, "Please oblige and instruct us, and perhaps many who are interested in nature's wonders, and who are readers of GLEANINGS."

This cocoon is more compact than is that of the silk-worm that feeds on apple, etc. It is dark gray, three inches long, and nearly half as wide. The dried-up larva is inside; but it would never have produced a moth, as parasites have devoured its substance. These little parasites, whose life-history I hope soon to give in GLEANINGS, are ever on the alert, and bring to naught many a large insect. Had our friend placed this cocoon in a close box, she would have reared some of these parasitic flies.

The oak silk-moth is one of our largest American silk-moths. They are buff in color. A heavy black stripe, bordered with a narrow white line, cuts off a strip of buff on the margins of the wings, which trims up the moth in fine style. A transparent eye-spot marks the front wings. This is bordered by a narrowing of white and black. A larger similar spot on the hind wings has a large blue patch inside of it. The beautiful green larva has deep red tubercles, which bear hairs.

These insects form an excellent silk, perhaps equal to the Chinese silk-worm. Indeed, a Boston gentleman had a plantation devoted to their culture a few years ago. Disease, however, got among them and cut short a very interesting ex-

periment. All of these large silk-worms, of which we have several species, spin their cocoons in the trees, attaching them to twigs. One of them, the *ailanthus* silk-worm, fastens to the large compound leaf. But this leaf falls, so some provision is necessary to keep the cocoon up in the tree where all is high and dry; hence the larva, before spinning its cocoon, goes to the base of the leaves and fastens them securely by silk threads which are firmly attached to twig and branch. Where this is not necessary, it is not done. Is such discrimination mere instinct? To call all such actions mere instinct is making instinct a greater thing than is reason. Instinct is only inherited habit.

A. J. COOK.

Agricultural College, Mich., Nov. 6, 1888.

DOOLITTLE'S CAVE.

WILL SUCH A CAVE ANSWER ON CLAY SOIL, WITHOUT SPECIAL PROTECTION?

FRIEND DOOLITTLE has persisted that bees can be wintered without any sub-ventilation, and without any attention whatever to ventilation. Now, if it can be done as easily and at as little expense as he says, there would be a good deal of saving of time and expense. His last article (p. 41), and the remarks under it, with the foot-notes on p. 46, and especially the fact of his success, make me have a good deal of hope that he may be all right. To me it would be a very delightful thought to think that I could put my bees away in the fall, without care, and with no anxious thought about them till spring.

To the last question in the foot-notes, "Would it do to shut up a cellar tight, in a damp clay soil?" I should very much like an answer, for that's just the soil I have. Most rose-cultivators approve of covering roses, before freezing, with soil. One year, just before freezing up, I covered my hardy roses with soil, and in the spring not more than five out of a hundred were alive. The soil was clay, and very wet at the time, and I think the roses were smothered. I suspect bees would smother if shut in the same soil. But if it be the covering overhead that allows the ventilation, as you suggest, friend Root, then the case is not so bad; for material could be hauled from some distance. Possibly some other material than soil might answer. I do not know that it is any thing strange that Doolittle's cave keeps "as low as from 43° to 46°." You say Mammoth Cave holds at 56°, summer and winter. I suppose Doolittle could find a depth at which he could hold, say, 54° summer and winter, the temperature outside ranging between the extremes of 30° below and perhaps 95° above. At a trifle less depth it would slowly vary from 53° in winter to something like 55° in summer, and at a still less depth the variation would be still more, until we reached a point where, instead of 54, summer and winter, we might have perhaps 9° lower than 54 in winter, and 9° higher in summer, only at this point we should have slight variations with the weather, making it in winter from 43 to 46 instead of staying uniformly at 45.

I don't know but I'll have to give under to Doolittle in this whole matter of wintering; but to save his chuckling over it, the printer needn't print this in the copy of GLEANINGS that is sent to Doolittle.

DILWORTH'S "EXCLUSIVE RIGHT OF TERRITORY."

More and more, as men think of making a regular business of raising honey this matter of exclusive territory "will not down," but will come to the front. For one, I shall gladly welcome any fair and honest solution of the problem. Friend Dilworth's plan is "to pay each farmer or lot-holder within the flight of his bees a certain sum yearly, not to keep any bees on his property." It is something after the plan recommended by Mr. S. T. Pettit, of Canada. In the foot-note, friend Root says, "Go to your neighbors all round about you, if you are located in the country, and get them to sign a paper, agreeing not to keep bees under a certain number of years." The plan has a look of fairness about it. Now, will friends Dilworth and Root put it in practice? If I am not mistaken, friend Root has said he would like to have exclusive territory; and if I am not still more mistaken, there isn't a man in the business, having as many as a hundred colonies, who would like another hundred colonies set down within half a mile of him. So, friend Root, you are just the one to try it. Still, I'm not so sure that I hate you bad enough to want you to try it. If you were to start out to-day to get every one within a mile of you to sign a paper not to raise oranges in the open air, I think it would cost some money; for people who never dreamed of raising oranges would feel sure there was money in it, and I'm not sure but it might be the means of getting some started in the business. So in the bee-matter, I think you would find a good many who would refuse to sign altogether, and others to ask an unreasonable sum, while the very fact of your attempting to buy some men off would start them to thinking whether they ought not to keep bees. Then suppose you have bought up or had given you all the territory within two miles of you, except just one acre that belongs to old Grasper, within a quarter of a mile of you, the whole affair is utterly worthless unless you can get that acre, and Grasper has you at his mercy. Then there may be sheriffs' sales, and things of that sort among so large a number, and then your previous arrangements are upset.

I have just looked at the map, and counted the different parties owning land on one-fourth of the ground within two miles of me—and surely apiaries should be at least two miles apart, if of full size—and I find there are 30. This includes no village or suburb; and if I take in the whole ground, village and all, it runs up into the hundreds. Excuse me from stirring up those hundreds. I have no trouble now, and never had; but if I started out with a paper I might make myself trouble. You can see, friend Root, that, in the great majority of cases, you would have from 100 to 500 parties of all sorts to deal with. But friend Dilworth is just that much ahead of the majority, that he sees *some* plan is needed.

C. C. MILLER.

Marengo, Ill.

I grant, doctor, that, in my locality, it would be a pretty big job to get exclusive territory; but where one has a farm, and all around him are large farmers, it seems to me there ought not to be any difficulty in purchasing it. Large farms do not change owners very often. If that does not answer, go where land is cheap, and buy all within a mile in every direction. Who will tell us how many acres it would take? By the

way, almost everybody in our neighborhood has given up bee-keeping, and I believe that that would be the result to a certain extent in the course of a number of years, especially if the acknowledged bee-keeper of the locality does not have any very big bonanza, and *they* do not come very often.

BEE CULTURE IN PREMIUM LIST.

WHY THIS INDUSTRY HAS NOT RECEIVED THE POSITION IT DESERVES.

I WISH to call the attention of our bee-keeping friends at large to a matter in which I think we are all interested; that is, the manner in which our vocation is neglected by agricultural societies. I find, in looking over a great many premium lists in this and adjoining States, that bee culture is recognized in only comparatively few of them. Now, why is it so, and who is at fault? Is it the officers of said societies, or bee-keepers themselves? I am inclined to think that, in a majority of such cases, it is the latter; for in my experience with agricultural societies I have never met a board of officers who were not only willing but anxious to add an apianian department to their premium list.

As I have intimated that bee-keepers are at fault, I must explain wherein. As a rule, officers of agricultural societies are not conversant with or skilled in apiculture, consequently are at a loss to know the requisites in an apianian department, which could be furnished them by almost any bee-keeper who would volunteer to do so. But this is too often neglected or deferred until too late; and the consequence is, apiculture is left out. Now, friends, let me insist that every bee-keeper consider himself a committee of one to look after this important matter of seeing that our industry is represented in your respective agricultural premium lists. In case you should meet any opposition in the board of officers, press upon them the fact that bee-keeping is an essential branch of agriculture, in that the honey-bee is indispensable to the fertilization necessary in the vegetable kingdom; that honey is a production of the farm, and can be had at the door of every farmer who will acquire the proper knowledge of handling a colony of bees. Besides, it is a wholesome and desirable article of food, and is getting to be one of the staple articles of our markets, therefore its production should be encouraged by every agricultural society in the land.

Now, friend Root, as some of our bee-keeping friends may be a little backward, and feel incompetent to furnish the requisite list, and as it has been suggested in GLEANINGS that a list be published as a guide for those interested, allow me, with your assistance, to submit the following form, or criterion, for county fairs:

	1st Pr.	2d Pr.
Best colony Italian bees.....	\$2.00	\$1.00
" " Native, or black bees....	2.00	1.00
" Italian queen-bee	1.00	50
" Display of comb honey, quality and manner of putting up for market to be considered.....	3.00	1.50
" Display of extracted or strained honey, for market.....	2.00	1.00
" 5 lbs. fancy comb honey.....	1.00	50
" 5 lbs. fancy extracted honey....	1.00	50
" Specimen comb foundation....	1.00	50
" 5 lbs. beeswax.....	1.00	50
" Bee-hive for all purposes.....	1.00	50
" Display of apianian implements	3.00	1.50

Benton, Ill., Feb. 12, 1889, WM. HUTCHISON,

Your ideas are tiptop, friend H. My experience has been exactly like your own. When the officers of our county fairs blunder, and make themselves a laughing-stock for all bee-keepers, it is the fault of the bee-keepers, because they did not come and help and properly post them. Perhaps the officers of some county fairs think they can not afford the amount of money (\$27.00) in your table; but in such an event, the bee-keepers should turn in and help. After you have once showed the officers what you can do, and put up your display in good shape, I am sure they would not be at all backward in giving you handsome encouragement; and this state of affairs is very much better than fault-finding. If, after having done all you can, they should get hold of a poor man for judge, and accord the premiums to a box-hive bee-keeper, don't find a bit of fault, but urge the importance next time of having a practical bee-man for at least *one* of the judges.

THE FOOD QUESTION IN WINTERING BEES.

FRIEND CORNELL TAKES FRIEND HEDDON TO TASK.

REPLYING to question No. 97, in GLEANINGS, Mr. James Heddon says it does not make much difference about ventilation, because the whole matter of safe wintering hinges on the food. Since, of the thirteen bee-keepers who send replies, Mr. Heddon is the only one who ignores ventilation as a factor in wintering, it is proper to inquire what are his views regarding food, upon which, in his opinion, hinges all the chances of failure or success.

Of sugar syrup he says, "It has heat-producing elements to a greater degree than honey." He says, "Syrup contains no nitrogen, but it does contain more oxygen" than honey, and he says this oxygen is burned to keep up the temperature. Of pollen, he says, "Pollen is almost wholly nitrogen," and "the consumption of nitrogen is the cause of the trouble." On this account he objects to honey, because it often contains floating pollen.

In a recent article, Mr. Heddon says, "When the bees find themselves unable to keep up the proper temperature by the burning of oxygen *derived from the honey and sugar syrup they consume*, they add to it combustion from that taken in in the air they breathe." Honey and sugar are built up of carbon, with twice as much hydrogen as oxygen. This is precisely the proportion in which these two elements are united in water. Neither the one nor the other plays any part whatever in heat production, when combined as they are in this case. That depends entirely upon the quantity of carbon present, and upon the requisite quantity of oxygen being taken in, by breathing, to oxidize it. The oxygen which takes part in heat production is not taken into the alimentary canal, and is therefore neither meat nor drink, but it passes from the air, taken in by breathing, into the blood by diffusion, and by diffusion also from the blood into the tissues; hence the necessity for a change of air in the hive, because "one pound of carbon requires for its combustion 158 cubic feet of air."—[Butler on Ventilation of Buildings.]

The quantity of carbon in one pound of sugar is

43 per cent of the whole. One pound of sugar, therefore, requires for its combustion about 68 cubic feet of air. Supposing the bees to consume half an ounce per day, or about a pound per month, and supposing the air space in a hive to be half a cubic foot, to furnish the oxygen absolutely required for the consumption of this small quantity the air in the hive must be changed in one way or another, at least once in every six hours. There is no escaping this conclusion. If this supply of air is cut off, the bees will die just as certainly as the machinery in the "Home of the Honey-bees" would stop if the dampers were closed and the furnace hermetically sealed.

I may mention, incidentally, that the oxidation of half an ounce of sugar in the bodies of the bees produces sufficient heat to raise the temperature of 23½ lbs. of water one degree. In both the above cases, the sugar is assumed to be free of water. Assuming their food to contain 12 per cent of water, which is about the normal quantity in honey, the oxidation of half an ounce of food would raise the temperature of 13 lbs. of water one degree. Since the quantity of carbon in honey and sugar is the same, their heat-producing powers should be the same, and experimental tests prove this to be the case.

The union of oxygen and carbon, besides generating a great amount of heat, produces a large quantity of carbonic acid, which is given off with the breath. To dilute this gas as fast as it is produced, so as to render it harmless, the air in the hive must be changed every half-hour, assuming the consumption of stores and capacity of the hive to be the same as before.

The quantity of vapor produced by the consumption of a pound of sugar can be shown to amount to about 16 cubic feet. This is an additional reason for a steady change of the air in the hive.

These statements of fact are in accord with the teachings of physiologists and scientists whose reputation is second to none in the world; and I would ask Mr. Heddon to investigate what is known regarding these facts, and be prepared either to admit their correctness, or to successfully controvert them.

"From the researches of Dr. A. de Planta, as to the chemical composition of hazel pollen, we learn that the contents of pollen grains consists of protoplasm, starch, and oils. After thorough drying, the residue remaining consists of 31.63 per cent of nitrogenous matter, 64.36 per cent of non-nitrogenous substances, and 4.01 per cent of ash. The non-nitrogenous portion contained no glucose, but cane sugar was proved to be present to the extent of 14.70 per cent, and starch to the extent of 5.26 per cent."—[B. B. J., 1886, p. 286.]

In an analysis of pollen given by the late Arthur Todd, B. B. J., 1883, p. 14, we find:

Water.....	12.74 per cent.
Ash.....	2.72 per cent.
Albuminoids.....	21.75 per cent.
Sugar.....	26.20 per cent.
Nitrogenous organic sub's.....	36.59 per cent.

Albumen, which is shown to be present to the extent of 21.75 per cent, contains about 15 per cent of nitrogen, or 3.26 per cent of the whole. The whole amount of nitrogen present was less than 40 per cent in this case, and less than 32 per cent in the former one. These analyses hardly justify any one in saying "pollen is almost wholly nitrogen." In the latter case the carbon in the sugar present

amounts to 11.27 per cent of the whole, and the carbon in the albumen present amounts to 11.52 per cent of the whole, or in all more than half as much carbon as there is in an equal weight of sugar. The other elements, nitrogen, sulphur, and phosphorus, produce some heat also. These facts show that, for direct heat production, pollen is not an unimportant item in the larder of the hive. According to the investigation of Erlenmeyer and Dr. von Planta, the average total quantity of floating pollen in ten different samples of honey was only about one part in 600 parts of honey. Regarding this, Pastor Schoenfeld says, "It is quite clear that so exceedingly small a percentage of nitrogen is altogether insufficient to maintain a colony in a normal and healthy condition during the winter."

I shall not now discuss the necessity for pollen to repair the wear and tear of tissue in bees from the time of fall feeding till the time for gathering pollen in the following spring, a period of, say, seven months, during at least a portion of which time it is impossible to keep them in a state of quiescence; but I shall direct attention to two facts to which other writers on food for wintering have not alluded, as far as I recollect; namely, that, under any circumstances bees can not continue to digest sugar syrup for any considerable length of time without the aid of nitrogen, and that the oil contained in pollen materially assists the digestion of both the nitrogenous and carbo-hydrate food stuffs. In order that the reader may judge as to the sufficiency of my grounds for making these statements, I quote as follows:

Dr. Letheby says, "It is very probable that the nitrogenous matters assist the assimilation of hydrocarbons. Fat serves important functions in the process of digestion, assimilation, and nutrition. The digestive power of fat is considerable."—[Lectures on Food, pages 71, 74.]

Dr. Parkes says, "If the nitrogen be cut off from the body, the various functions languish. This does not at once occur, for every body contains a store of nitrogen, but it is at length inevitable."—[Practical Hygiene, vol. I., p. 204.]

Dr. Wilson says, "The saccharine constituents are largely concerned in carrying on the digestion of nitrogenous substances."—[Handbook of Sanitary Science.]

Dr. Pavey says, "It may be inferred that nitrogenous matter is required, not only for the formation of tissues, but likewise for contributing, by the promotion of the requisite change, to the utilization of non-nitrogenous principles; and unless it exists in suitable amount in the food, these principles fail to pass to their proper destination. The presence of fat in the food seems in some way to promote the transformation of the carbo-hydrates. Fat exerts a favorable influence over the assimilation of nitrogenous matter."—[Treatise on Food and Dietetics, pages 278, 279.]

Prof. Foster says, "When an animal is fed simply on non-nitrogenous food, death soon takes place. The food rapidly ceases to be digested, and starvation ensues."—[Text-book of Physiology, page 570.]

These quotations are hardly compatible with the statement that "the consumption of nitrogen is the cause of all the trouble."

If practical proof of the truth of these statements is required when applied to the case of the bees, it is furnished in the experience of Mr. Heddon, as

given on page 270, GLEANINGS, 1885. His bees, from which pollen had been excluded as far as possible, died of starvation, notwithstanding the fact that they were found to be full of undigested sugar syrup. In the light of the information furnished by the physiologists quoted above, are we not justified in attributing their defective digestion to the absence of nitrogen and oil, which a supply of pollen would have furnished? Mr. Heddon found, then, for the first time in a long experience, that bees quite readily succumb to the effects of cold. When the digestion of sugar languished and then ceased, a failure in keeping up the normal temperature should excite no surprise. The experience of Mr. Demaree, given on page 788, vol. I., C. B. J., is another case in point, showing that bees can not continue to digest syrup without pollen.

In view of all the facts, I think it will be admitted that Mr. Heddon is in error as regards the composition of honey, syrup, and pollen, their functions in the process of digestion and assimilation, their capacity for heat production, and the necessity for a constant change of air in the hives. I submit, therefore, that he is not in a position to be able to say with confidence, "The whole matter of safe wintering hinges on the food." All attempts to defend the exclusion of pollen from the food of bees in winter, on scientific grounds, have broken down, and all experiments made to justify its exclusion, by the success of practical results, have been either so inconclusive that they are quite worthless as proof, or they have proven the very contrary of what it was supposed they would establish. I think it is high time that Mr. Heddon should begin to see that the old-fashioned food, honey and pollen, with surroundings such as will keep the bees comfortable, are, after all, the most reliable conditions for safe wintering.

S. CORNELL.

Lindsay, Ont., Can., Feb. 11, 1889.

Friend C., you are doubtless right, or pretty nearly right; and I presume likely that friend Heddon as well as myself has got somewhat rusty on chemistry. You have given us theory and science (and I believe you are correct) enough to last us a good long while. Now, while I do not mean to be disrespectful to science or theory either, I want to say that I have wintered splendidly when every thing was removed as closely as I could remove it, except stores of sugar syrup. In fact, we took their combs all away, and gave them clean combs containing nothing but sugar syrup, and I never saw bees winter better than they did. We have done nearly the same thing, on a large scale, since the time I have mentioned, and there was no loss with as many as 200 colonies. In this latter case, however, they had their own combs; in the former experiment alluded to they did not commence brood-rearing, or at least did not succeed in rearing brood, until they got pollen; and in regard to ventilation, I feel sure either that bees do not need as much as you estimate, or that more air gets through ordinary hives and ordinary cellars than we are aware of. I have repeatedly seen bees winter beautifully in ordinary cellars that seemed to be remarkably close and tight, where no provision had been made for ventilation at all; and with bees buried in the ground, or put in caves, as Doolittle mentions, they not

only do well, but even better, than where provision is made to have a constant circulation of air. We thank you for your excellent article, because it gives us valuable scientific data for future reference; but if practice and theory should give different results, I would stick to practice. Friend Terry said that, when scientific men were against ensilage, and the cows were for it, he preferred the testimony of the cows. I believe the cows have come out ahead.

CALIFORNIA: CONSISTENCY OF CHRISTIANS, ETC.

A GOOD BOOK ON THE SUBJECT OF TOBACCO-USING.

MR. ROOT:—I have delayed this letter, that Huber and all the home friends might have time to exhaust their store of questions in regard to that wonderful country you have just visited. My husband traveled over a part of the same country one year ago, and was so well pleased with it, and had such good times with J. Root, that he tells me he left his heart there. I think the orange-tree, with its fruit in all stages of growth, and from which ripe fruit may be picked every month in the year, might remind us somewhat of the tree of life, spoken of in Revelation. And did you never think, while admiring them and all the other beautiful things, what wonderfully large tobacco-plants are raised in that rich soil, whose leaves are not for the healing of the nations? No doubt you did, and were saddened by it. I have not seen much about tobacco in GLEANINGS of late, and I often wonder if all the tobacco-users who come under the influence of your journal have reformed, and if all the boys whose papas take GLEANINGS have been careful not to learn to smoke. I prize what has been printed in the "Tobacco Column" more highly than any thing else in GLEANINGS—not that I undervalue Our Homes, but there are a thousand people who will speak and write on the subject treated there, where one can be found who will say a word against the use of tobacco, except in a mild and general way; and so unpopular is it, that hardly a newspaper or magazine can be found that will print a decidedly outspoken article on the subject. And when we think of the number of professing Christians who are slaves to the use of tobacco, it is appalling; "their name is legion." I can count quite a number in our little neighborhood. They will "speak in meeting," and say they feel that they have reserved nothing—all is laid on the altar. Now, I believe these people are real Christians, but they have not been aroused on the subject; "their eyes they have closed," etc. I know a man about 30 years of age who has been a professing Christian for 15 years; has used tobacco all the time, and is Sunday-school superintendent in one of the churches of this place. I believe he has never been known to "take a chew" during the hour he is engaged in this exercise. He also teaches a district school near here; and although it is not known that he uses tobacco during school hours, he makes a free use of it morning, noon, and night, giving and receiving it from the boys of the school who are addicted to its use. Now, if it were possible to exclude all superintendents and teachers, what shall we say of Christian fathers who

have an influence over their sons that no teacher can have, and yet indulge in its use without apparent shame, and other fathers too?

I am very glad of what you are doing to bring about a tobacco reform; and may we not hope, when liquor has been banished from the land, and people are aroused on the subject, to see the boy who now walks proudly with a lighted cigar, slink out of sight behind a corner, or hide in an alley to indulge his morbid taste? And may we not look still further, and confidently expect a time when the American people will arise in their might and put it from them? Let us remember the words the Lord spake to Joshua, that the children of Israel should go up and possess the land—"Only be thou strong and very courageous."

I have been led to think more on this subject of late, by reading a book, written by an aged minister residing in this vicinity, whom I have known for years. I will send you a copy of the book. His object in writing the book was to inform the young of the evil effects of tobacco, both on mind and body. He has been studying the subject for a number of years, and finally decided to publish a book at his own expense, that the youth of the land might be warned, giving incidents from his personal observation, and opinions of eminent physicians, etc. He has not undertaken this work with a view to money-making, but solely to benefit mankind; and he assures me that, whatever profits are derived from its sale, will be used to print more books. While preparing himself for his life-work, he was a student at Oberlin for some time, completing his studies afterward. He has spent a long and useful life in the ministry, and now, in his old age, to help rid the world of this tobacco curse, he is willing to give the greater part of his earthly store. Surely a little of that spirit of self-sacrifice manifested by the Savior remains with his followers. The price of the book is 50 cts. Will you be so kind as to read it and give it such notice in GLEANINGS as you may think best? Please let me know. I wish every subscriber of GLEANINGS would purchase this book. All having sons opposed to the use of tobacco, and those having no children, could make it do a good work by placing it where visitors and hired help could easily pick it up; and those having daughters only could make it useful in the same way. I think it would be a good book for Sunday-schools and public libraries.

MRS. J. B. RATCLIFFE.

Amboy, Minn., Feb. 1, 1889.

My good friend, I am exceedingly obliged to you for having given us a good stirring-up on the tobacco reform. In the crowd of other matter that is sent in for GLEANINGS, we have sometimes inclined, when deciding what *must* go in and what *might* be held over, to say that the Tobacco Column is not of any special importance "for this present issue," so it lies over for something else. There is almost always, however, a protest by myself when a single number goes to press without at least something on the subject. I am exceedingly obliged to you for the copy of the little book, and I want to say to our readers that it is a perfect gem so far as the subject on hand is concerned. There is not any dry reading in it. It is all, or pretty much all, stories from actual experience. One is reminded of an experience meeting where those who attend rise up rapidly, one after

another, and give in their testimony. The book is so interesting that, if the hired man or boys should open it almost anywhere, they would read and read, and then turn back until they had read it through. I really believe, as you say, that it will pay us to buy it and leave it around where people will get hold of it. You may tell the author that I want 100 copies right away; and those who find it more convenient to order of us instead of the author, N. A. Hunt, Mapleton Station, Minn., can do so.

We will furnish it at 45 cents, by express or freight with other goods. Now, then, friends, if you want to help along in this work, order one or more copies, as you can afford, and "leave them around," as our good friend Mrs. Ratcliffe expresses it. The book is neatly bound, and contains 192 pages, so that the price, 50 cents, is not very high.

Since the above was in type we have the following:

Mr. N. A. Hunt:

I am glad to receive a copy of your book—a broadside against tobacco. I have read it from beginning to end, and believe every word of it. The book is fair and moderate in tone, without exaggeration or over-statement, nothing bitter or fanatical in it; yet it is a terrible arraignment of the mischievous and unworthy habit. I wish all the 5000 copies were sold, and another edition twice as large called for.

Jas. H. Fairchild, President Oberlin College.

It is refreshing to know that so great an authority as the President of Oberlin College so warmly seconds what I have just said in regard to the book.

RAMBLE NO. 11.

THE RAMBLER'S IDEA OF WHAT A BEE-SUIT SHOULD BE.

BEFORE getting off upon this ramble I wish to call attention to something else that is an immense success in my every-day work in the apiary.

So far in bee-literature I have not read of nor seen illustrated a really full dress-suit especially for bee-keepers; nor have I seen any thing systematic in dress in any of my rambles. The Rambler tries to be a tidy bee-keeper, and has given bee-keepers much attention.

A special work-suit must have several essentials. It must, or ought to be, light in color; easy to put on or off; must protect the entire person, and be of a color, make, and texture, to stand frequent washings.

Duck overalls and aprons usually worn are clumsy and inconvenient for all of the above purposes. Getting thoroughly disgusted with the "stickativeness" of my clothes I rambled to a clothing-store and found what is called an engineer's suit—overalls and short coat, or blouse, made of blue and white checked cotton cloth, the whole weighing only 1¼ lbs. Cost "zhust von tollar, zhust a fit, and zhust the thing." The beauty of this suit is the certainty of complete protection to your Sunday clothes if you choose to wear them; and the price enables you to own two suits, and wash often, and always clean. Then there are plenty of pockets fore and aft, for pencils, jack-knives, screw-

drivers, queen-cages, toothpicks, etc. There are those who may possibly object to appropriating or adopting an engineer's suit to bee-keeping; but, friends, if a mortal man or woman, conducting an apiary of two hundred colonies of bees, isn't an engineer, who else indeed is worthy of the name?

When extracting honey, or at work with stickiness that is certain to get on my arms, I put on an additional set of sleeves. What are called gossamer sleeve-protectors have been extensively advertised; but my experience with them proves them to be a humbug. Try to wash them off, and they wet through; then they are of such a stingy pattern that the elbow is not reached. I now use a sleeve made of a new manufacture of oil cloth, thin, flexible, and absolutely water-proof, reaching generously above the elbow, and secured at wrists and arms with a peculiar button. These buttons are also on the bottoms of the overalls and on the coat-sleeves. Rubber bands work well at first, but they soon become a "vexation of spirit."



THE RAMBLER'S COMPLETE WORK-SUIT.

For head wear I prefer a stiff straw hat, with a 3¼-inch brim, over which a silk brussels-net veil is worn in the ordinary way. A hat-brim of the above width enables the veil to give protection to the Rambler's three-inch nose. There are other bee-keepers who would probably need a wider-brimmed hat; but a slouch hat should be avoided, as partaking too much of the nature of a cow-boy style.

The Rambler could never tolerate a white veil with black portion before the eyes, as there is always more or less strain on the eye through the contrast of color; and then such a veil never remains half black and half white. The white soon tries to get to the shade of black, but never attains to it, but gets dirty enough to look very untidy. The Rambler has seen some horrid bee-veils, and, rather than wear them, would prefer stings.

To hold the veil snug around the neck I prefer a stout cord with a slip-noose. This isn't half the bother it is to tuck it under the coat; or if it is desired to put the coat-collar over, it is already drawn up nicely for the purpose by the cord. A net veil can be slipped off the hat, and carried in the vest pocket.

I am also particular in relation to foot-covering. I have seen bee-keepers stamping around the yard with heavy No. 10 cowhide boots, or even rubber boots, with the trowser-legs tucked in. This style may do for drawing manure, ditching, or other menial work, but are clogs to feet, body, and mind, in the bee-yard. There is nothing easier than a good lace or button shoe. I prefer a leather shoe for durability; and for wet mornings I slip on a pair of rubbers. Cloth shoes of various styles are very easy, but objectionable on the above grounds.

The foregoing, therefore, is the Rambler's ideas and practice in relation to bee-dress; and to keep up my reputation for liberality, I give it to the fraternity. Don it, my friends, and you will some day rise up and bless the

RAMBLER.

P. S.—Please wait a few minutes, friends. I will now start on the ramble as soon as I get "Nig's off hind shoe set."

R.

Friend R., I think you have hit the nail on the head this time, even if you did not ramble. When I am working among the bees, I can not bear heavy boots, nor heavy clothing of any kind. Our engraver has made a very neat-looking young man, as you may notice, in the picture. Your foot on top of the hive looks a little as if the pant-leg were tied up with a string. I used to wear cloth or kid gaiters; and when in a hurry I have often wrapped up the leg of my light pants, and pulled my stocking over it. This made a sure thing of keeping the bees out, but it did not look very becoming, especially when ladies called to see the apiary. One trouble about dressing, especially for our vocation, is that most of us have to rush from one thing to another in a hurry. Ditching, hauling manure, etc., may be the regular work of the day until something calls us to the bee-yard, or we happen to have a little spare time. I have often admired the suit worn by our railway engineers, especially when they put on a clean one, and I believe the same rig would be handy and convenient for a good many kinds of farmwork.

THE HONEY EXHIBIT AT THE COLUMBUS CENTENNIAL.

PRESIDENT MASON GIVES FURTHER FACTS CONCERNING IT.

FRIEND ROOT:—In GLEANINGS for Dec. 15th I described your exhibit at the Ohio Centennial Exposition, as shown in the picture on page 959. I think I am safe in saying that not one-fourth of your exhibit is there shown, and I will but briefly mention the remainder.

Across a passageway, to the right of your exhibit as shown in the picture, on a platform, was shown a one and a two story chaff hive all complete for extracted honey, and so arranged that, at the desire of any interested visitor, some of us were ready to transform either or both into hives for comb honey in a "jiffy." Here was also displayed a bee-tent made of mosquito netting; a roll of 600 square feet of wire cloth; a large roll of perforated (or queen-excluding) zinc; some force-pumps, sections, etc.

On the further side of the table, but not to be seen in the picture, there were smokers, sections in

all shapes; foundation, both thick and thin; foundation fasteners, ready for business, and they were frequently put to the test too. There were also price lists, and sample copies of GLEANINGS, hundreds of which were distributed. On this table, and within easy reach, was always kept a goodly supply of your cards offering \$1000 for evidence that comb honey is made by machinery.

On the platform beyond the table was a large assortment of Langstroth and Simplicity hives in all sorts of combinations; slatted honey-boards, metal honey-boards, wood and zinc honey-boards, wooden frames, metal-cornered frames, chaff cushions, division-boards, separators, section cases in endless variety, with and without sections, and with and without starters. It was just wonderful what a variety of combinations could be made with what was here shown. Wondering and inquisitive bee-keepers could in a moment have a hive rigged out for operation. It was as good as a box of monkeys, for fun, to see your men or some one else of our company make up a hive for any purpose, or to suit any inquiry.

Two kinds of section-folders were always in running order; and boxes of sections, made on your section machinery at Power Hall, were always handy by so as to demonstrate to visitors and customers just how it was done.

One day when we were all busy showing off things to the crowd, some boys took it upon themselves to fold a lot of sections with one of the machines, and, when first noticed, had folded as much as a two-bushel box full. Perhaps if they had thought it was work they might not have folded more than a dozen or two, and then have been "tired out."

On the platform, at the left of the picture, were shown some 60-lb. honey-cans with their accompanying boxes; a lawn-mower that was so cheap and good that I brought it home with me; a solar, a Swiss, and a Jones wax-extractor, and some swarm-catchers.

Next to the display of queens, I don't now remember of any one thing that you had on exhibition that attracted so much attention, and called forth so many remarks, as did the straw bee-hive you took the trouble to get from Connecticut, I believe. We had it labeled, "Straw bee-hive over one hundred years old." People were not satisfied with looking at the outside of it, but had to turn it over and look inside also; and when we would tell them it was the same shape inside as out, they would still turn it over. I sometimes wished that it contained a colony of bees that were first class in the stinging line.

A great nuisance at such times is the very bad habit so many people have of leaving things just as they happen to be when they get through examining them, evidently not having "a place for every thing, and every thing in its place" at home.

The large sign, "Exhibited by A. I. Root," in the top of the picture, looks all out of proportion to the rest of the exhibit; but it was not, and I have not the slightest idea why it looks as it does. It was a neat, tasty, and cheap sign, and all the exhibits would have looked better with a nice sign over them.

Perhaps some exhibitors may want to have such a sign at some county or State fair next fall, but might think it is too expensive. Aside from the boards, either rough or dressed, the cost is but a few cents. Mr. Will Weed, who had charge of your exhibit, was

quite anxious to have everybody know that the exhibit belonged to A. I. Root, and seemed bound to have a sign painted that would have cost several dollars, from four to six, I believe; but "older heads" didn't think it was best; but he could not give up his wish, and so took two boards, about nine inches wide and six to eight feet long, and fastened them together with strips on the ends, and covered the whole, both sides and edges, with white paper. He then took some red card-board and cut it into strips and pieces, and then tacked them on with small tacks, making the name A. I. Root, as shown, the A being made of three pieces, the I of one, the T of two, the R of seven, and the O's of eight each. These letters were put on both sides, and it made a very neat sign. I believe the above letters were about a foot high. The letters in "Exhibited by" were each of one piece, and were about three or four inches high.

To the left of the picture and your exhibit was quite a variety of appliances used in the apiary, consisting of an exhibit by Dr. G. L. Tinker, in which was a box hive used over 40 years ago in Eastern Ohio, and a small straw hive that was used over 60 years ago in the same locality. The doctor also exhibited a double-walled hive, several of his "storifying" hives, for either comb or extracted honey, several section and extracting supers, quite a variety of honey-boards, among them his wood and zinc queen-excluding; strips of perforated zinc; four-piece poplar sections, smokers, cartons, drone-traps, some crates of poplar honey, two colonies of his Syrio-albino bees, and three nuclei for showing queens. To those who have seen any of the doctor's "handy work" it will be unnecessary to say it was first class in every respect.

Dr. J. C. Oldham, of Springfield, O., exhibited an invertible and divisible shallow-framed storifying and interchangeable hive that attracted some attention, and was frequently dissected by curious bee-keepers. Near by was an Armstrong side-opening hive and side-opening T super, with sections, fixed up in nice shape, exhibited by E. S. Armstrong, Jerseyville, Ill. It attracted quite a good deal of attention, and we frequently had to put it together after parties had given it a good overhauling, or visitors would not have known such a hive was on exhibition.

Here, too, was one of Mr. James Heddon's new hives, with divisible brood-chamber, section-supers, extracting-super, a queen-excluding and a break-joint honey-board. This hive was a regular "curiosity shop" to many, and attracted much attention, and, like the other divisible hives, had frequently to be reconstructed so that its individuality might be maintained.

Here was also a straw hive from Germany, which belonged to an 80-year-old German by the name of Burchard, who lives in Michigan, and who will keep bees in no other kind of hive. It was a great curiosity. With it was an old Quinby smoker that belonged to Mr. Andrew Fabrique, also of Michigan. It was brought from Pennsylvania many years ago. By the side of this hive was an old "log gum," or bee-hive, cut from a basswood-tree, with a board nailed on one end for a cover, for which many old bee-keepers had words of affection, and many an entertaining as well as amusing story was told about cutting bee-trees by these "old-timers." These old relics were properly labeled, so that passers-by might know what they were.

Here I'm reminded of an explanation given one day by a gentleman 75 years old, being one of our largest exhibitors, a well-posted bee-keeper, and known to us as "Uncle Aaron" Goodrich, of Worthington, Ohio. Some visitors, who acted as we see people sometimes when they wish to make the impression that they are smarter than most people, were asking him some questions about the straw hives, the box hive, and the log gum, and he told them that was "the kind of hives bees used to be kept in when they had king-bees;" then pointing to the Tinker, Armstrong, and Heddon hives that were near, added, "but those nice hives, or bee-palaces, are what bees are kept in now that they have queens." Perhaps there didn't any of us bee-keepers or anybody else smile, and it can readily be imagined that the story was more than once repeated.

On this same platform were exhibited a Muth honey-extractor and a Jones wax-extractor by Dr. Besse, of Delaware, O., and a solax wax-extractor and bee-hive by Elias Cole, of Ashley, O.; also a hive and solar wax-extractor by C. E. Jones, of Delaware, O., each of whom also exhibited several good colonies of bees and a one-comb nucleus to show the queen, and one of them had 16 and the other 17 queens in queen-cages, for exhibition.

In the right-hand upper corner of the picture on page 959, above referred to, is shown a portion of the exhibit of C. E. Jones, which consisted mostly of comb honey in crates, the crates being interspersed with extracted honey in different styles of packages, and a display of honey-producing plants. He also had two candy-jars that had been filled very nicely with honey by the bees.

To the left of the above exhibit was that of Mr. Elias Cole, of Ashley, Delaware Co., O., composed largely of extracted honey in glass, and placed on shelves. It will be noticed, by referring to the picture, that some of the bottles look black and some white. That is owing to the different kinds of honey. When the picture was taken, that which is white was candied; and the other, which is alsike-clover honey, was not. The wall above the exhibit was decorated with flags, etc.; and over the left portion of this exhibit, almost entirely hidden by the large sign, was festooned a large American flag. To the right and near the top of the wall may be seen a display of over 140 honey-producing plants, each one numbered and named.

On the platform below the exhibit, but hidden from view, was a foundation mill, smokers, honey-knives, samples of foundation, comb honey in crates, beeswax, etc. Near the center, at the bottom of the shelves, may be seen a part of a diminutive house that attracted the attention of all the little folks who espied it, and many an "old folks" was attracted by its novelty. It was a regular house made in the form of an L, with chimneys, doors, and windows. Lace curtains were at the windows, so looped back as to show the nice honey within. It had a veranda, with diminutive people sitting on it; a pump near the door; a fence around the dooryard, which contained evergreens and shrubbery, and, to complete it as the home of honey-bees, small bee-hives were sitting in the yard. To complete the picture, a sign, "This Property for Sale," was standing in the yard.

At the left of Mr. Cole's exhibit may be seen a portion of the exhibit of our family, consisting of comb and extracted honey, honey-plants, honey-

cakes, and cookies of several kinds, honey-candies, honey vinegar, honey wine, honey-knives, foundation, beeswax, and Bingham smokers sent by Mr. T. F. Bingham for exhibition. At the right of the exhibit, but hidden by your Sturwold show-case, is another of your Sturwold cases filled with fine comb honey, and, standing on its top, one of Mr. E. O. Tuttle's bee-keepers' medleys.

A description of what was on the other side of the building, and of your section machinery, etc., with some incidents connected with the exhibition, may be given in the future. A. B. MASON.

Auburndale, O.

Now, doctor, I am going to complain a little. From the above it is quite evident that, day after day and week after week, you explained things, and showed your visitors all around—told them long stories; yes, you even took pains with every old lady, and I suppose every juvenile too; and yet when I came around myself you did not show me about nor tell me any of these wonderful stories at all—at least if you did I can not remember it—that is, I do not remember very much about it. I did not know until just now that there is a bee-keeper in Michigan who still keeps bees in straw hives. You say the man's name is Burchard, and that "he lives in Michigan;" but how in the world are we going to visit and see an old-time apiary, without knowing what part of Michigan it is in? I want to tell you, friend M., that Michigan is a very big place. Your story is so interesting that I feel now as if I would give a good deal to see "Uncle Aaron" and all the rest of those other good friends we always meet at our Columbus conventions. By the way, I have just asked Ernest why we did not have a convention this winter. He says we had our convention in conjunction with the great national, and the bee-keepers thought that that was convention enough for quite a spell. I do not agree with him, however, and I hereby give notice that, when there is another Ohio bee-keepers' convention, I wish to be invited.—Just a word about that sign. Mr. Weed wrote me that he thought we ought to get a good nice big sign, even if it cost several dollars. I told him that I thought something transient would do very well. But when I got down there I said to myself, "There, the boys have gone and paid out quite a lot of money for a sign, after all," but as we went there to have a picnic I thought I would not scold, but just make believe that I was pleased, you know. Pretty soon I remarked to Mr. Weed, "Why, Will, you did go and get a nice sign, after all, didn't you? But, didn't it cost a good deal of money?" And then they had quite a good laugh when somebody said it did not cost half a dollar all together. Now, friends, you can make very handsome signs, to be put up indoors, not exposed to the weather, with a pair of scissors, some tacks, and some colored paper. Why, there was not a prettier nor a plainer sign on the whole centennial grounds than that one.—Doctor, you do not tell us who got up that little house and dooryard, etc., with the house "chuck full" of honey. Did that little sign bring a customer?

HEADS OF GRAIN FROM DIFFERENT FIELDS.

DR. A. B. MASON'S OPINION OF THAT NEW PRESS STRAINER.

I AM glad you have the press strainer for sale, that you illustrate and describe on page 130; and so cheap too. I told one of your men at the centennial that you ought to have them for sale. At the earnest solicitation of "Uncle Aaron" Goodrich, one of the exhibitors at the Exposition at Columbus last fall, who lived nine miles away, I went home with him one Saturday night to spend the Sabbath with him and his family; and nicer potatoes than were on their table it had never been my privilege to eat. (I hope Mrs. Mason will not hear of this.) Monday morning at breakfast I got up courage enough to ask for their way of fixing them so nicely, and learned that it was done with just the kind of press you describe. They had been sold from house to house by an agent, for one dollar each. I found them for sale at a "general store" near where "Uncle Aaron" lived, and bought one for fifty cents. I would have willingly paid a dollar for it, and felt that I had the worth of my money. Mrs. Mason makes as nice bread as I ever tasted (I don't care if she does hear of this), and uses mashed potatoes in doing it; and when I showed her how the press (or "tater smasher" I call it) made the potatoes so "fluffy" you "just had oughter seen" her smile. Try to induce every husband to get one for his better half, and every "feller" to get one for his "best girl," if her father hasn't already got one for her mother.

Auburndale, O., Feb. 20, 1889.

A. B. MASON.

CONTRACTION, AND HOW FAR IT MAY BE CARRIED
WITH ADVANTAGE.

If the brood-nest is contracted to 5 or 6 frames in the Gallup hive, will the queen be more likely to lay in the surplus apartments? If so, is not side storing preferable? Do bee-keepers always use queen-excluding honey-boards if contraction is practiced? When the brood-nest is well filled with brood in the spring, is it advisable to spread the combs and insert about two empty combs in the center, in order to increase brood-rearing?

E. S. MEAD.

Olivet, Belmont Co., O., Feb. 6, 1889.

Friend M., if contraction of the brood-nest is carried to extremes, of course there will be a greater liability of the queen going above to deposit eggs. If the colony is good and strong, a brood-nest of 8 Langstroth frames ordinarily will not require to be contracted. With a colony of moderate strength, and in a moderate honey season, it may be desirable to reduce the brood-nest to 5 or 6 frames.—As we have had but very little experience with the Gallup frame, we could not advise you in regard to contraction for a frame of that dimension.—Queen-excluding honey-boards are, we think, an advantage where the brood-nest is reduced to $\frac{3}{4}$ or possibly $\frac{1}{2}$ of its full capacity. A great many prominent bee-keepers do not consider their use essential, while others are just as positive that they are an advantage. In regard to spreading brood, we advise you to see an article from the pen of G. M. Doolittle, in a late issue,

SQUARE VERSUS ROUND PACKAGES FOR 10 LBS. OF EXTRACTED HONEY.

Last fall, when I was visiting some of the towns of Texas in which so much California honey had been sold two years ago, I found nearly all the merchants pleased with and wanting the California style of packages for extracted honey; namely, the square tin can holding 10 lbs. of honey, packed 12 in a crate, and sold by the dozen. I promised some of them the packages for the coming season; but where can we get them? You don't sell them, as it seems. I called the attention of some of the merchants to the fact that there was only 10 lbs., light weight, but they said they didn't care for that. I hope the editor will look well into this matter. Give us these packages at a fair rate, and we can compete with California in extracted honey.

Bright Star, Ark., Jan. 1, 1889. T. J. MARTIN.

We can furnish the one-gallon square cans put up ten in a box, and shipped from St. Louis, Mo., or from Medina, Ohio, in lots of ten boxes, at \$1.40 per box; in lots of one hundred, \$1.30 per box. Although we have not heretofore advertised them, the new edition of our price list will contain prices about as above. You will notice that the prices quoted are about the same as for the round cans of the same capacity. For economy of space, convenience in boxing and shipping, the square style of cans is very much superior. These and other considerations will make them the favorite shipping package for holding about 10 lbs. of honey. See another column.

STIMULATING BROOD-REARING WITH RYE FLOUR.

Can I start brood-rearing with rye flour, without feeding honey or syrup? When there is plenty of sealed stores in the hive, about what amount of the rye flour would I need for 55 colonies, to have them in good shape for the honey-flow? White clover and wild raspberry are the staple honey-plants here. There are several good orchards within range, and sumac is plentiful. Basswood is scarce.

Myrtle, Pa.

E. A. PRATT.

You can start brood-rearing with rye flour, without feeding any honey or syrup, provided the colony has plenty of stores in the hive. If the season is favorable for meal feeding—that is, if natural pollen is slow to make its appearance—you may feed several bushels of rye flour to your bees before the pollen comes; but we are not quite agreed that there is always a positive advantage in feeding rye flour. I have known bees to store so much rye meal in their combs that they did not succeed in getting rid of it, and it remained there the season through. Better not overdo it.

SUCCESSIVE SWARMS OCCUPYING THE SAME PLACE OF CLUSTERING.

Are swarms attracted by the scent of other swarms, or why do they so often cluster on the same object? During the past summer our swarms, with few exceptions, settled on the same tree (a peach-tree), notwithstanding there were other trees of the same kind in the apiary. I have hived as many as four swarms from the same tree, in a single forenoon. In fact, it became such a common occurrence that, when a swarm issued, it was easy to guess where it would alight. This state of affairs continued until the poor tree really became an object of pity, being almost destitute of

limbs. As many of the swarms were quite large, their weight was more than the tender branches could bear, and many of them were broken off.

SARAH E. DUNCAN.

Lineville, Iowa, Feb. 12, 1889.

The fact you mention has been brought up before, a good many times. You will find it spoken of in the A B C book. The subsequent swarm was probably attracted by the scent left by the bees and queen of the preceding swarm. Little particles of wax may sometimes be found attached to the limb, and these particles may be a factor in inducing the bees to seek this point.

LARGE OR SMALL HIVES FOR BUSINESS.

Friend Root, you have asked me a question in GLEANINGS, page 61, that I am just prepared to answer from actual experience. May 11th I cut a beehive, and there was about a quart of bees in it, and about 5 lbs. of honey. I put the bees and honey in a box with 6 frames 9 inches deep, and 17 inches long. I carried them home, set them on a bench by the side of a strong colony in a 10-frame hive. The small colony filled their 6 frames full by July 17th, and I put on top 24 1-lb. boxes, and they filled them. The 10-frame hive swarmed twice, and made just 6 1-lb. boxes full, and the first swarm made enough to winter on. The second swarm did not. In this case the small swarm is the better.

Wistar, Pa.

SETH NELSON.

Friend N., you give us good proof that a small colony may do better than a large one; but we should by no means conclude that this is the case in the majority of instances.

SOME GOOD NEWS FOR BEE-KEEPERS WHO HAVE TO PAY FREIGHT RATES.

Friend Root:—The bee-keepers of our country will be gratified to learn that one of the great railroads, the Louisville & Nashville (reaching from Cincinnati to New Orleans, to Memphis, St. Louis, and many other important points) issued a new local freight tariff and classification table last month, and a good many changes were made in our favor. The rates are not materially changed, but the new classification of articles in our line is what makes the reduction. For instance, "Bee-hives, set up," are changed from double 1st class to 1st class; same in the flat, crated, from 3d to 6th class (which is the same class as box material and lumber); honey, from 2d class to "honey in glass or tin, boxed," also "comb honey boxed," 3d class, if released, "honey in barrels or kegs," 5th class, released. All honey is 1st class if not released. Honey-extractors, crated, and smokers, boxed, are 1st class; beeswax is changed from 2d to 3d class. A "low tariff" letter from your humble servant to the General Freight Agent, about 3 months ago, may have dropped in opportunely, as the new tariff was being made up; and may or may not have had something to do with the changes. That matters not, though. The result of the revision is gratifying to us bee-people, and we appreciate it enough to "stand by" the "old reliable" L. & N., and give her our traffic whenever we can.

Wetumpka, Ala., Feb. 4, 1889. J. M. JENKINS.

Friend J., this is indeed good news, and we hereby express our hearty thanks to the L. & N. Now, then, can't their tariff rates be submitted to other roads, as a means of inducing them to go and do likewise?

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 109.—*Do the drones subserve any useful purpose in assisting to keep the brood warm after swarming?*

Sometimes.

GEO. GRIMM.

I think they do.

DR. A. B. MASON.

I believe that they do.

CHAS. F. MUTH.

I have always thought so, when natural swarming is allowed.

P. H. ELWOOD.

I seldom find sufficient numbers of them left in the hive to affect much.

R. WILKIN.

I guess so, but I am not sure. Let the apicultural entomologists post us in regard to this.

JAMES HEDDON.

Not any more than the workers that could be raised in their space and with their food.

DADANT & SON.

I suppose enough drones would keep the brood warm without any workers; but I think the same number of workers would do it as well, at less expense.

C. C. MILLER.

They may at times, when it comes off cold immediately after a swarm issues; but I think the cases are rare where the drones are of any use inside the hive.

G. M. DOOLITTLE.

Of course, all bees help keep up the temperature of the hive; but I should much prefer workers to drones. I am sure that few drones in the hive is the correct policy.

A. J. COOK.

I think it very doubtful. If they do, their use is not appreciated by the rest of the colony, as they are generally required to move into some corner of the hive, out of the way.

H. R. BOARDMAN.

I think they are of some assistance. I advise a limited amount of drone comb in each hive. I think all of the facts will not warrant the supplying a large number of drones.

L. C. ROOT.

I think the brood has sufficient vital heat of its own to keep warm, usually, in swarming time. In case the hive was a very bad one, or an untimely cold spell should occur, the drones might be useful.

E. E. HASTY.

I have failed to come to any conclusion in that regard, but I am inclined to think that they do not. Take a colony and sift the drones out, and another with drones, and you will see that one does as well as the other.

PAUL L. VIALLO.

Possibly they are of some use for this purpose, but their presence can generally be dispensed with without any detriment, as, at the swarming season, the weather is usually so warm that a very few bees will keep up the temperature of the hive. I have known a drone to hatch after lying on the top of a hive in the shade for three days and nights, no bees having been near it during that time.

JAMES A. GREEN.

The answers to these questions remind me of the time when I used a queen-nursery made of a lot of cages, so as to have a dozen

or two queens in one hive. When the queens were old enough to get fertilized I let them out one at a time, to take their wedding-trip. It all went very well until the bees protested against having a new queen every day or every other day. They began to ball them to such an extent that it spoiled the business. As a remedy, I proposed to have a colony all drones and no workers. The drones would keep the brood warm, and afford the new queen a refuge. Of course, they would not care a cent what queen nor how many queens there were at a time in the cluster. Well, it all proved true, and more too, for they did not care a cent how many robbers came in and loaded up and went off. My next project was to find a locality where no bees were near enough to rob; but as I did not at that time find any such locality around here, my plan of raising queens about as easily as you raise cabbage-plants went by the board.

QUESTION 110.—*Suppose two or more commission firms in the same city—distant from your home—solicit consignments of honey from you, and you know them to be equally reliable and capable. They watch arrivals, and know to whom your honey goes, in that place at least. They are not confined to your honey alone, but have consignments from others as well. Would you ship all your honey (for that market) to one of these firms, or divide your consignments between them? Give reasons for your decision.*

I think I would deal with one. This would involve less expense and trouble in the whole transaction.

A. J. COOK.

I would not ship to either, but employ my leisure moments in selling it at home and in the vicinity of home.

MRS. L. HARRISON.

Under the above circumstances I would ship to both. Two salesmen, each with a line of customers, are better than one.

GEO. GRIMM.

I would ship to only one commission house in the same place. You can not afford to enter into competition with yourself.

H. R. BOARDMAN.

Divide consignments, because there is a better chance to make your name known, and because you can best tell which firm is best.

DADANT & SON.

My custom has been to send or sell all to one party, as I prefer to receive one full remittance. There might be reasons for dividing shipments.

L. C. ROOT.

I would divide the consignment, believing that each would be interested in making better returns than the other in order to secure further consignments.

R. WILKIN.

If I could get no information as to which one has done the best, I would divide to find out. I have divided my shipment on some occasions, shipping on the same day, and the returns were at least 15% difference in price sold, although the honey was all of the same grade.

PAUL L. VIALLO.

In one city, I would confine my consignments to one firm, under ordinary circumstances. Reason: To prevent competitive ambition. I have seen the case in our city, where a carload of comb honey was consigned to two commission merchants, who ran down the prices of each offer in order to effect sales.

CHAS. F. MUTH.

If the crop were a small one I would send it all to one, in accordance with the proverb that says, "Don't make two bites of a cherry." Were the crop large I would send some to each, in accordance with the proverb that says, "Don't put all your eggs in one basket." Too many men in the honey-trade tends toward cutting under in prices. Too few men in the honey-trade tends toward an imperfect cultivation of the market. E. E. HASTY.

I would ship all to one firm. By so doing, the one who gets your consignment will feel better toward you than if you divided it. There are reasons both ways as regards the action of the commission merchant; but it is much less trouble to make one deal than two. We country people are too much prone to suspect the action of business houses in the city. In many cases we make ourselves ridiculous in that way. JAMES HEDDON.

That's a tough one. I've practiced both ways. I would ship to one firm alone, because it would be less trouble; and if small shipments, a little less expense; the firm would have a more friendly interest in my sales knowing they had all my shipments, and my honey would not be in competition with itself.

I would ship to both, so each would try to outdo the other in getting me a good price, and to find which one would do best for me, and because each may have his own customers. C. C. MILLER.

Of late years I have never shipped more than 500 pounds of honey to any one commission house, and have found that I obtain better prices than I formerly did. The principle seems to be, that there are more parties that want only from three to five hundred pounds of honey than there are who want larger lots; and where one sale will dispose of a whole lot at one time, the commission merchant prefers it that way, to the breaking-up of a large lot. If the commission merchant is honest and reliable, he should work to your advantage, whether he knows that he has your whole lot or otherwise. G. M. DOOLITTLE.

I think I should ship all to one firm. I have had no experience in sending honey to commission men; but if they all feel as do the commission men here in Toledo in regard to other kinds of consignments, it would be much better to send all to one firm. There are two good reasons for doing so. One is, that the commission man is more interested in the disposal of the consignments of parties who give him all their trade. Another reason is, that it tends to raise the price. If one has consignments and the other has none, he will feel like offering an advance in price, in order to secure a consignment. DR. A. B. MASON.

I would do as I thought right and best. The reason is, that, if your venture proves a bad one, you can say to your wife or other guardian that you did it for the best, etc. 1. I would send an equal quantity to each, with the understanding that the one who makes the best returns shall have a prize—either a chromo or a mouth-organ. 2. I would send all my honey to one; for if you let them both have it, the first thing they will do will be to run down the price; Jones will come in and say, "I can get Smith's honey over at the other shop for 10 cents a pound." Shopkeeper No. 2 will say that he will sell you Smith's honey for 9 cents. In a short time the price will be away down below the cost of furnishing

—another illustration of overproduction, and that prices are regulated by supply and demand, and not by trusts, monopolies, combinations, strikes, and tariff. 3. I should not send any thing to either of these men, but I would sell to the man who offered me a reasonable cash price. This is the only good way to establish a satisfactory honey-market. When nine-tenths of our honey-producers do this, we shall have a satisfactory honey-market, and not before. If you send no honey to either of these men, you will probably know enough to keep away from that town, as "they watch arrivals." P. H. ELWOOD.

Ship to only one commission firm in the same city, if you know that one to be reliable, otherwise there is likely to be competition and underbidding. This is especially the case if there is any difference between the two lots. Call one commission man A and the other B. Jones ships No. 1 honey to A, and some not quite so good to B. A's judgment is, that he can get 16 cts. for his lot of honey, while B puts a price of 15 cts. on that consigned to him. Smith, a sharp unscrupulous buyer, goes to B, inquires the price of that lot of honey, and is told 15 cts. He moves on to A, and prices Jones' honey. "What, 16 cts.? Why, I can get just the same honey down at B's for 15." A doesn't want to be undersold, so he probably replies that he will sell honey as cheap as B. Perhaps, to make a trade, he offers it at half a cent less. Back goes Smith to B, and says, "See here; A is selling honey at 14½ cts. that is a good deal nicer than this, worth fully two cents a pound more. If you'll come down to a reasonable figure, I'll take five cases of this; but if you can't, I'll go somewhere else." The result is, that Jones's honey, in competition with itself, lowers its own price. JAMES A. GREEN.

I do not know who asked the above question, but I suspect it was somebody who felt a little sore over some transaction, and wanted to see whether we as a crowd were sharp enough to pick out all the points in the case; and it is those who have had a rich and ripe experience who see difficulties first. For instance, our good friend Muth is the first one to see the danger that your stock of honey will be running against itself. Friends Elwood and Green develop this state of affairs still further. Friend Hasty tersely puts it by directing attention to the two dangers by referring to two opposite proverbs. Friend Heddon closes with a grand truth. We country people are too prone to suspect the action of business men in the cities. Wholesale denunciation of commission men is one of the saddest blunders a body of bee-keepers ever fell into.

QUESTION 111.—Which will make the better working colonies during the working season—that is, secure the most honey—those that require from 20 to 25 pounds to carry them through, or those that will get along on from 5 to 10 pounds while in winter quarters?

I think as a rule, such as consume the lesser quantity are the better. L. C. ROOT.

A strong colony always consumes more honey than a weak one, and a strong colony always secures the most honey. CHAS. F. MUTH.

I suppose this question has reference to large or small colonies; if so, I should say the large one.

The one that has the most bees will make the most honey.

E. FRANCE.

As a rule, those that winter on a small amount of honey in proportion to the number of bees in the hive; or, in other words, those that hibernate most perfectly.

P. H. ELWOOD.

Under the same conditions, the colonies requiring most honey for wintering will prove the most profitable the next season. Taking every thing into consideration, though, I do not care for extra-strong colonies in the fall.

J. A. GREEN.

It all depends on the queen. If the strength of the colony, when it goes into winter quarters, is the gauge of the prolificness of the queen, then the strong colony would likely make the better working colony, as the queen, judging by the past, would likely be the better layer of the two.

MRS. L. HARRISON.

The colonies that require the greatest amount of stores to "carry them through," as a rule will be able to do the most work during the honey-season, because most of the stores consumed are in brood-raising; and the colonies that raise the most brood will, as a rule, be strongest at the beginning of the honey season.

H. R. BOARDMAN.

I do not think this question can be answered, as so much depends upon the mode of wintering and quality of queen. I prefer to have a colony eat but little in winter. This indicates a repose or restful condition, that I think favorable to the bees. Disturbance or disquiet causes undue eating.

A. J. COOK.

It is not the amount of stores a colony consumes in winter quarters that enables the bee-keeper to judge of its working qualities. Some of the best working colonies I ever had consumed less than seven pounds of stores while in winter quarters. One of my poorest colonies last season was one that lost over 20 pounds in weight while in the cellar.

DR. A. B. MASON.

That depends. If the 25-pound eaters are ravenous because they are worrying and unhealthy, they will be very apt to come out number two in the honey-harvest. If they use the extra stores in rearing brood, they may gain or may lose by the process—more frequently the latter, I think. I rather prefer that all over 16 pounds be hanging in the comb-closet, to be given back to them in the spring, if desired. Bees that (in a moderate climate) will not go through the winter on 16 pounds had better be dead than to live and propagate their greedy race.

E. E. HASTY.

Our bees have always wintered the best when coming through with the least depletion of numbers, and consequently with better vitality where the consumption of stores, while in winter quarters, was small. We know by careful weighing that we once wintered a strong colony of bees, in a special repository, on two and a half pounds of honey. That season all colonies consumed a minimum amount of stores, and nearly all were strong enough to swarm about the 15th of April. I never saw any thing like it before or since.

JAMES HEDDON.

That depends. If the colony that eats 25 lbs. is no stronger than the one that eats the 10 lbs., but eats more only because it's uneasy, it is likely to come out weaker in the spring than the one that eats 10. Still, it is barely possible (although I don't

think it's likely) that, being of equal strength, the one eats more than the other because of a more active temperament, and on that account may be more active in the working season, hence more valuable. In general, however, I suspect that the colony that eats 25 lbs. is just so much stronger than the one that eats 10, in which case the one that eats the 25 is likely to be the better working colony.

C. C. MILLER.

Now, I wonder who is the author of these questions. What has the amount of the consumption of winter stores got to do with the working qualities of the colony during the next season, any way? How can we reason from an effect when we don't know the cause? Increased consumption of stores may be due to the temperature, the manner of wintering, disturbance, extra strength of colony caused by great prolificness of queens, etc., and it may result in "playing out" the queen prematurely, or it may continue the colony strong during the season. In other words, I don't think any judgment as to the working quality of a colony can be based on its consumption of winter stores alone. The colony in best condition *when the honey season opens* will ordinarily give the best results.

GEO. GRIMM.

To answer this question we had better condense what a successful bee-keeper of Italy, Mr. G. Metelli says, who got a good crop last year while bee culture was a failure in the whole country. See the *Apicoltore* for December and January:

"We use very capacious (capacissime) hives, which contain in the brood-chamber from 12 to 15 Italian frames, instead of 9 or 10, as usually." The Italian frame is about of the same size as the Langstroth, but it is placed vertically. "The colonies which, on the first of May, have hardly consumed the 22 or 24 lbs. (10 or 11 kilog.) of honey given for winter are not strong enough to make honey in spring. But we can anticipate that those which consumed from 36 to 40, and even 44 lbs., will return the honey used, and profusely."

DADANT & SON.

No colony, to winter well, should consume more than ten pounds of honey while in winter quarters. If more than this is consumed, the chances are against that colony being a very profitable one the next summer. By winter quarters, I mean the time during which the colony is in the cellar, or from Nov. 1st to April 15th. If this colony is wintered outdoors, then I should say from Nov. 1st to March 20th. After this, during the next two months, the colony should consume as much honey, if they are to be a profitable colony during the summer, as they did while in winter quarters. The size of the colony has not so much to do with the amount of stores which they consume while in winter quarters, as has the quietude or uneasiness of the colony. For summer profit, give me the colony which has been quiet during winter, every time.

G. M. DOOLITTLE.

No wonder our good friend George Grimm wonders who the author of these questions is. I suspect that A. I. Root started the matter, and I was pretty sure of the truth of what the above testimony brings out; namely, that uneasy colonies often consume a large amount of stores, without being very much the better for it; also that, when every thing is just right, a pretty fair-sized colony may winter on a comparatively small

amount of stores, and be in excellent trim for business in the spring. Notwithstanding this, however, I would rather have a colony of bees that weighed 3 lbs., even if it cost 15 lbs. to winter them, than a nucleus of one pound that could be wintered on 5 lbs. of stores. And this starts another question: About how many pounds of stores would be required to winter a pound of bees, on an average? I would suggest 5 lbs. Now, if some of our bee-hives contain 1 lb. of live bees, and others contain 5 lbs., we can readily see how it will take five pounds of stores for one, and 25 for the other. Dadant, Doolittle, and others have hinted at this thing, as you will notice.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

THE BUSH LIMA BEAN—FURTHER DEVELOPMENTS.

AFTER receiving a sample of Dwarf Carolina beans from Landreth, mentioned on page 119 of our last issue, I wrote at once, asking how low they could sell us a quantity, also asking them if these beans were not exactly the same thing as Henderson's Bush lima bean. Below is their reply:

A. I. Root—Dear Sir:—Henderson's Bush lima bean is not a lima bean at all, but a Carolina bean. We have had it for five years, and never considered it worth more than a three-line paragraph. We never propagated in quantity. Next year, if people want it, we shall be able to supply it.

DAVID LANDRETH & SONS.

Bristol, Penn., Feb. 14, 1889.

Now, it seems to me no more than just and right that the public should have the benefit of the above opinion, from so great a seedsman as Landreth. It is also just and right that Henderson be allowed to reply. I accordingly submitted to him a copy of Landreth's letter, to which he replies:

Mr. Root:—If any of our contemporaries in the trade have said that our "New Bush lima bean" is "not a lima bean at all," then allow me to say that any one making such a statement is either ignorant of botany and of knowledge of the bean tribe, or that he is actuated by motives unworthy of an honorable contemporary.

The "New Bush lima" is simply a dwarf "sport" from the Sieva (sometimes called Sewee), or Carolina lima, which, though smaller, of course, than the large white lima, is just as truly a lima as the large white lima, which is known in botany as *Phaseolus lunatus*, while the variety known as the Sieva, or Carolina lima, is *Phaseolus lunatus* "minor" (smaller).

My knowledge of this vegetable was from a correspondent in Virginia, two years ago, who wrote me that he had a field of three acres, growing for seed. I could hardly credit his description of it, because such a story seemed too good to be true; but I at once started to examine it, and I found on arrival that it was all he claimed for it—a lima, pure and simple, dwarf as the ordinary bush bean, in no way differing in pod or bean from the large White Pole lima, except in size. When I tell you that we are retailing 500 packets a day of the Bush lima bean, and that our sales, wholesale and retail, will probably reach 250,000 packets before the

1st of June, you can well understand what a serious matter it would be to us if "Henderson's new Bush lima bean" were not all we claim it to be.

PETER HENDERSON.

Jersey City Heights, N. J., Feb. 19, 1886.

Although it seems hard to reconcile these two statements from two of the greatest seedsmen in the world, I think perhaps I can help the matter. In Landreth's catalogue, 1889, first page, he gives a photograph of the bean; and I presume that, when he wrote the above letter, he had forgotten that, right under that photograph, it is called "Dwarf Carolina, or Small Lima." From the above it is evident that Landreth decided to call it a small lima bean. Besides, the picture shows a stalk literally loaded down with pods. It is not a picture gotten up for catalogue show, mind you, but it is an absolute photograph of a stalk of beans pulled up by the roots. This photograph shows that the bean in question is certainly enormously productive, just as Peter Henderson says. Now, then, if the flavor is as good as that of the large lima bean, it is certainly worth all the advertising that friend Henderson has given it, even if it is small. My impression is, that Landreth's folks had not given the bean the attention it really deserves. One thing is certain, also, that they have not any amount of seed on hand, for they say, at the close of their letter, that they will be prepared to supply it next year. Up to the present date of writing it seems that Peter Henderson has the only stock to be had, on the face of the earth. Again, on page 24 of Landreth's catalogue, right under mention of the Large Jersey lima, we read:

Carolina, or Sewee.—A small variety of lima, more easy of vegetation, more vigorous in growth, earlier in season, more profitable in pod than the above. Price \$9.00 per bushel; 45 cts. per quart.

Now, observe that the *above* refers to the Large Jersey lima. Well, if this new Dwarf lima bean has all the qualities of the lima, as quoted, and is dwarf besides, it is certainly an acquisition.

I want to call the attention of our readers to the little incident that comes out in the above, where Henderson went at once to see that three-acre field of bush limas. The act is characteristic of the man; and I presume, although he does not tell us about it, that he bought every bean on that three-acre field. Almost if not all were planted last season, and now Peter Henderson is boss of the Bush Lima bean for the world, for all we know, and he ought to be. He deserves it for his energy and enterprise.

Later.—Since writing the above I have had my wife cook three samples of lima beans. The first was California lima beans, such as we sell at 10 cents a quart—dry beans, of course. The second was some King of the Garden limas that were saved last summer because they were too ripe to shell for the market-wagon. The third batch consisted of three 25-cent packages of Henderson's Bush lima beans. The whole family tasted them and their decision agrees with mine: The California lima beans were very good; King of the Garden limas, excellent—almost as good as green limas;

Henderson's Bush lima bean, very little different from ordinary white beans, with the exception that they have a slight lima taste, but not to be compared with the other two. Now, if, in a green state, they are no better than when dry, our good friend Landreth is not so very far out of the way in saying they are not a lima bean at all. But here comes a card from our good friend W. J. Green, of the Ohio Experiment Station:

Friend Root:—I see that you are disappointed in the size of Henderson's dwarf lima bean, and no doubt many others are also. Thorburn has what he calls Kumorle's dwarf lima, the seeds of which are quite large. I know nothing about it, however.

Agrie'l Exp't Sta., Columbus, O. W. J. GREEN.

We have written to Thorburn, and will report in our next.

THAT EARLY YELLOW PUMPKIN.

Mr. Root:—Inclosed find some pumpkin seeds of a yellow pumpkin that is earlier than anything else in the line of pumpkins I have ever seen. They are very sweet and nice, though they are quite small, growing to weigh only about 8 to 12 pounds.

Wabbaseka, Ark.

G. E. LYTLE.

We have got it already, friends—see? And here is another:

My wife sends you some pumpkin seeds called "Garden" pumpkin, as per Feb. 15th GLEANINGS. They are "boss," small, but grow quickly.

Mosiertown, Pa., Feb. 18, 1889. GEO. SPITLER.

There, friends, do you see how readily we can get almost any thing we want by submitting it to the combined wisdom and experience of the readers of GLEANINGS? and here is still another friend with his offering:

A. I. Root:—We notice you want an early variety of pumpkins. We have an *extra-early* variety, but it is in a *tin can*. Now, our people here never think of *cooking* a pumpkin, as they think our canned pumpkin is an improvement on what they can *cook*; besides it is ready for immediate use. Will not this answer?

D. CUMMINS.

Conneaut, O., Feb. 22, 1889.

You see, friend Cummins is in the canning business, and his early pumpkin is certainly early enough for anybody, for it is always ready for use, as we can testify from personal experience, winter and summer; and a whole can full, can and all, can be sold at retail for only 10 cts. If you want a single can for sample, when you are ordering goods of us just mention it and we will put one in at the above prices. If you want them by the case of two dozen each, I presume friend Cummins will be glad to fill your orders.

FRIEND MARCH'S CABBAGE SEED—ANOTHER REPORT.

The trial packet of March's seed we planted last season gave the best of satisfaction. It was fully as early as Etampes, and a better header. (Wife says the above is not strong enough; the Wakefield seed was sown two weeks later than Etampes, and produced the first heads fit for use.) S. P. YODER.

East Lewistown, O., Feb. 21, 1889.

I wish to add to the above, that we have for many years tested almost every new

cabbage that has been recommended as being earlier than the Wakefield, to be found in our catalogues, and so far we have not found one of them that made a good solid head. Last season we planted two long rows of Johnson & Stokes' Wonderful; but our customers would not have them at any price when they could get Jersey Wakefield, as they were soft and loose; and I presume we lost a couple of dollars that would have been saved had we planted Jersey Wakefield. I am still going to keep on testing early cabbage, but I shall not put out over a dozen plants of any kind again until I find something not only earlier, but as hard and solid as the Wakefield.

TRAINING TOMATOES ON BEAN-POLES.

Set the plants three feet apart each way, and rather deep in the ground; in fact, as far down as the plant will admit, as the less plant above the surface at the start, the shorter and more bulky the vine will be, which is a very great advantage when the fruit is large and abundant. Very tall and leggy plants may be set out by making the hole trough-like, as you would to set out grapevines, and cover up the leggy part of the plant, and leave only a small part of the top above ground, as the stem of the plant will send out roots all the length that is under ground. The next move will be to drive down firmly by each plant a strong pole or stick, not less than six feet above ground—hoop-poles or sticks from lumber yards, such as are used for "sticking" plank will do well. When the plant is high enough to need tying to the stake it will need pruning, and, most likely, before. Every sucker must be taken off then, not one being allowed to remain, and the vine will, of course, consist of one single stalk, and must be kept so, to give large perfect fruit, and late into the fall. The tying to the stake must not be neglected after being begun, or the vine will fall over of its own weight, and likely break off. In pruning do not take off any of the leaves, as they are needed to shade the fruit and ground, and will grow just right to do it, and are, in fact, the life of the plant. Some years we are much troubled with cut-worms; and to go out some fine morning and find about every third plant lying over on its side, with no connection with mother Earth, is very exasperating. I would suggest, as a remedy, to wrap the stem of the plant loosely with a small piece of tissue paper, always allowing the grain of the paper to run up and down the plant instead of around it, so if you forget to remove it after the worms have disappeared, the growing of the plant, with the aid of a shower, will burst the paper. The fruit should be gathered before it gets too ripe, especially if it is to be shipped to market; and when it is gathered, put it in the shade instead of the sun, as is frequently done. Seed should be saved from the earliest and best specimens, dried on paper, and the variety and date put on the paper at the time. J. S. REESE.

Winchester, Ky., Feb. 4, 1889.

Friend R., I think very likely your plan would answer tiptop. I certainly think it would be a great gain indeed to be able to get our tomatoes away up above the ground, where they would not get spattered with muddy soil during heavy rains, and I do not know but that this one thing alone would pay for the expense of poles, and tying up.

OUR HOMES.

NOTES OF TRAVEL.

If thou turn away thy foot from the Sabbath, from doing thy pleasure on my holy day; and call the Sabbath a delight, the holy of the LORD, honorable; and shalt honor him, not doing thine own ways, nor finding thine own pleasure, nor speaking thine own words: Then shalt thou delight thyself in the LORD; and I will cause thee to ride upon the high places of the earth, and feed thee with the heritage of Jacob thy father: for the mouth of the LORD hath spoken it.—ISAIAH, 58: 13, 14.

OUR next adventure was crossing the main range of the Rocky Mountains. This trip was by daylight; and as the road does not follow any stream of water it was much more romantic. In order to get up hill, the track runs around

and up, partly on one mountain and then on another, and oftentimes it runs at different heights on the same hill. The conductor pointed to one place during the ascent, where the track could be plainly seen in four different places—the uppermost, clear up in the clouds. As we approached the summit we were greatly annoyed in our view of the valley by the snow-sheds, and also by the snow-storms, until we got above the clouds. As we neared the summit still more, the coal smoke left by a train just before us became very unpleasant in the snow-sheds; but when we finally stopped on the extreme summit, at Marshall Pass, nearly two miles above sea-level, I began to wish very anxiously to have them start down again. The rarity of the atmosphere made me pant for breath, as if I had been climbing the mountain, when I just sat there in my seat and had not walked a step. The descent was much pleasanter, for the sun shone; and when we got down in the valley it was very fair summer weather, while on the mountains it snowed and blew, and was terribly cold.

After we reached the summit of the mountain, of course we did not need the two locomotives that had pulled us up, therefore one of them started on ahead in order to be at the foot of the mountain when the next train came along, going in an opposite direction. This solitary locomotive, as it wound its way through the rocky cliffs, and threaded its way down below, was a most interesting sight to me, for it indicated more plainly the curves in and out. I can not tell it. My gift of language is not equal to the occasion; but I can come pretty near it by quoting an extract from the same book I have quoted from before—"The the Continent." You will notice the author was going in an opposite direction from myself.

To attain this height, the road has to twist and wriggle in the most confusing way, going three or four miles, sometimes, to make fifty rods; but all the time it gains ground upward, over some startling bridges, along the crest of huge fillings, through miniature canyons blasted out of rock or shoveled through gravel, and always up slopes whose steepness it needs no practiced eye to appreciate. To say that the road crosses a pass in the Rocky Mountains 10,820 feet in height is enough to astonish the conservative engineers who have never seen this audacious line; but you can magnify their amazement when you tell them that some of the grades are 220 feet to the mile.

We have just passed through Grand Canyon, on the Arkansas River. It is much like Black Canyon, only the cliffs are still higher. Some of them that hang right over the cars as they thunder along, I do believe are fully three-fourths of a mile to the top. Many of these great leaning cliffs are ap-



THE ROYAL GORGE.

Crest of that the direction

parently of rocks so loose and rotten that a little jar might set them tumbling. Many of them greatly resemble a certain kind of rotten wood, both in appearance and color.

There is one special point in Grand Canyon where the rocks rise higher, and the fissure where the river and the railroad run is still narrower, that I wish to mention. It is what is called the Royal Gorge, and the train stops here for a few moments to allow the passengers to get out and look around. The Denver & Rio Grande Railroad Co. have kindly loaned me a picture of it (see preceding page).

At this point we seemed to be so far in the depths of the earth that one is tempted to think we are soon to be at the end of the road. In fact, as we look out in advance of the train, and the short curves make it possible to see not only the locomotive for the greater part of the way, but the train itself, we are tempted to think we have run into a place where there is no outlet. Very likely, however, you have learned to have faith in the locomotive, and to feel safe wherever it plunges ahead.

Oh, yes! here is an outlet; but it is so narrow you begin to wonder how both the river and the railroad can find room. Well, this is exactly the problem that confronted the engineers when they laid out the road. There is not room for both; for when the river rises it fills the whole opening between the cliffs. Necessity here proves to be the mother of invention, and the track is placed on a sort of bridge, one side of the bridge being let into the rocky cliff—the other side, or, perhaps, more properly speaking, the ends of the railroad ties, resting on a timber that is suspended under their ends, running parallel with the iron rails. The river rushes along right under this timber—in fact, it refuses to be contracted even one inch. It must have *all* the space between the rocky barriers on either side. How, then, shall that timber that holds the ties over the water be supported? The picture will show you how they did it. Braces of great timbers, something like the letter A, span the river. One end is set in the rocks of the cliff at one side, and the other end in the other; and from where the timbers meet, great iron rods reach down and hold the track securely, with one edge over the boiling and seething torrent. I got off the train and stood on the track near those timber braces. I tipped my head back and looked up, up, up, until the rocks seemed on a level with the great birds as they swung lazily in the sky. I stared with open mouth until my neck ached, and then looked on the opposite side. There it was just the same. Look at some object just three-fourths of a mile distant from you, and then picture to yourself a rocky precipice straight up that distance. When tired again, I glanced at my twelve fellow-passengers, and then I looked at the railway train and the locomotive. The author of "The Crest of the Continent" says, after viewing the above he looked at his fellow-men, at the locomotive, and then concluded: "Of all natural curiosities, *man* is the most curious—yes, more marvelous than even the Grand Canyon itself." Before dismissing Grand Canyon I want to make another quotation from the above writer.

This is the Royal Gorge! But how faintly I tell it—how inexpressible are the wonders of plutonic

force it commemorates! how magnificent the pose and self-sustained majesty of its walls! how stupendous the height as we look up, the depth if we were to gaze timidly down! how splendid the massive shadows at the base of the interlocking headlands—the glint of sunlight on the upper rim and high polish of the crowning points! One must catch it all as an impression on the retina of his mind's eye,—must memorize it instantly and ponder it afterward. It is ineffable, but the thought of it remains through years and years a legacy of vivid recollection and delight, and you never cease to be proud that you have seen it.

At Pueblo, Colorado, I am again surprised to find a summer temperature, and to be told they have only five or six weeks of winter.

It is Saturday night, and the question confronts me, "What about Sunday?" My fellow-travelers have announced their determination of traveling right along, so as to get home. In my pocket is a letter from my wife, telling me that they expected me more than a week ago; also that she could not take Huber to church any more; for when he looks over to where papa usually sits, at the right of the empty seat, he bursts out sobbing, and has to be taken home. Dear little Huber! what would I give to get hold of him to-night? I am afraid I am a little homesick. The temptation is strong to rush right on home. But, how shall I feel all the long day, encouraging, by my presence, Sunday travel, or, rather, *no Sunday* at all? It is exactly like buying the memorandum-book last Sunday. By my act I should be saying to the great busy world, "You are all right as *you are*." Four Sundays have passed since I left home, and they have been glorious ones. Shall I lose courage on the fifth? God help me to do right. To be ready to keep the Sabbath "decently and in order," I should stop certainly by 6 o'clock, for I want to *get ready* for Sunday, and make a short call on the pastor of the church where I expect to attend. I believe my deaf friend was about right when he said he thought we ought to even *black our shoes* Saturday night in order to keep the Sabbath in the best sense of the word. Once more I am about to go among entire strangers. Satan says, "Nobody will know you or care for you here surely," but, with a prayer that the spirit of the Master may go with me and before me, I make my decision. I hardly need tell you that my heart felt lighter as soon as I had decided on this step.

During the past week I have already figured up about where I should be when Saturday night came, and I have selected a little town at the base of Pike's Peak (much talked of by the gold-hunters in 1859), called Manitou Springs, as my resting-place during the Sabbath. I selected this spot on account of certain attractions in the way of natural scenery beside the great mountain; and the conductor had already told me that we should be there about six o'clock. It was now about four o'clock, but no mountains were in sight, except a clump of hills off toward the northwest. The tallest of these, I had decided in my own mind, was probably Pike's Peak. This little group of mountains was probably forty or fifty miles away; but at the rapid rate at which we are going we should probably reach them in

two hours. Darkness came upon us, and I could see no more. Shall I tell you how it turned out? Well, I asked a young man if he could direct me to a quiet temperance hotel, where the charges were moderate. I also made some inquiries about Pike's Peak; for by the light of the stars I could see that the town was surrounded by mountains, except on one side, where the train ran in. A hotel was pointed out to me, and my informant also asked me if I could see the snow-capped mountain just back of the town. I told him I did.

"Well," said he, "that mountain, with its top covered with snow, is Pike's Peak."

"What! that great hill up close to the buildings yonder?"

"Yes, sir, that great hill up close to the buildings. But you may be surprised, however, to learn that it is not so *very* close, after all, for it is fully *thirteen* miles away."

Could it be possible? I gazed at the hills so long, wondering how it was possible that the mountain could be thirteen miles away, when it seemed almost overhanging the town, that I suppose I forgot which way he pointed when he told me to go to the hotel where I saw a light. Of course, I made a blunder, and got the wrong place; but, dear friends, did it never occur to you that, when one is seeking the guidance of his heavenly Father, even his blunders seem to be looked after? The place where I did go was a little hotel on the hillside, called Mountain View. A tidy, trim little woman, with a pleasant Scotch accent, informed me that their rates were only \$1.25 a day. She told me, further, that there was a Congregational church in the place, and that it was close beside us; yes, the pastor lived near by too; in fact, he was almost their next-door neighbor. I told her that I had a severe headache, and did not care for supper, any more than a cup of tea and some toast; but she took so much pains to make every thing pleasant, and to look after my comforts and wants, that I had forgotten my homesickness a good deal, even before I went over to call on the pastor of the little stone church. When I told them the circumstances, he and his good wife, and even the children too, treated me with as much consideration as if I were a member of their family. I felt too tired, however, to talk much. I told them I came principally to get some lesson-helps, to prepare myself for the Sunday-school on the morrow. The pastor's wife then said she had been wondering how she should find somebody to take her place as teacher of the Sabbath-school on the following day, as she was prevented from attending to it by other duties. I promised her to take charge of the class as well as I could, if I were not too hoarse to speak. They then both advised that I go back to the hotel and go to bed; and the good pastor added that, if I were not better in the morning, they would make it their business to take care of me until I was better. As I lay down to rest, I really feared that I was going to be sick; but I felt happy to think of the friendly hands I had fallen into.

As the morning sun poured into my pret-

ty little bedroom, my first thought was a feeling of thankfulness that I felt so well. Right in sight was that old white mountain, Pike's Peak, of the night before. An excellent breakfast soon made me feel quite well. The three or four young men who were boarders there not only enlightened me in regard to Pike's Peak, but also Grand Cavern on the mountain-side that, in some respects, rivaled Mammoth Cave; Rainbow Falls, the Cave of the Winds, the wonderful effervescing springs, and last, but not least, that strange product of nature, the Garden of the Gods, as it is called. One of them said that he was so busy during the week, he had not had time to see these celebrated places; but he thought he would go over during that bright sunshiny day, and he indirectly intimated that he would be glad to have me accompany him. I told the boys that I was very much interested in these strange things, but I did not believe in visiting such places very much on Sunday, but that on *Monday* I should be very glad of any instruction. As we went back to the sitting-room, one of my new friends asked me to look out of the window at Pike's Peak. I did so.

"Well, do you see the snow rolling in great drifts over the peak, and whirling in the wind?"

As soon as he mentioned it, I saw it distinctly, and uttered an exclamation of surprise—especially so as, down in the valley where we were, it was a comparatively warm spring morning. He further informed me that snow is blowing and whirling almost every day in the year away up on the summit of Pike's Peak.

While the boys went their several ways I sat down in the little sitting-room to study, and to prepare myself to teach my class. I not only read all the lesson-helps, but I took the Bible and read the whole history of Samson, from beginning to end. When the pretty little church built of mountain granite was opened, I was one of the first to enter. Did you ever know, dear reader, that a peculiar blessing seems to rest on those who gather *first* in God's holy house? I confess now that it has not been my custom by any means to be among the *first* at home; but during my vacation of four or five weeks, I have, somehow or other, been in a hurry to get to church or Sunday-school. On this Sabbath morning I felt particularly happy. Bright little faces soon followed me, and gathered into the Sunday-school. In Manitou they have Sunday-school before preaching. Pretty soon a little one, just about Huber's size, and remarkably like him, came up the aisle and made straight for me, taking hold of my arm, as if it always knew me. The act almost startled me; but it awoke in my heart a fervent "God bless the child!" and while the superintendent was speaking as the school opened, this same little one turned back to some boys and communicated the astounding piece of intelligence that she (I found out after that it was a little girl) had just had her *hair cut*. This piece of information was so extremely funny that she followed it up by giggling out loud. The superintendent

very gravely took her by the hand and led her up by his side, and then made her sit down by the steps of the pulpit. It seemed to me a little severe, and I was afraid she was going to cry; but she only hung down her head; and pretty soon, when his attention was taken up by the work of the school she edged off slightly, so that, when he looked for her again, she was missing. Now, this was a mere trifle, dear reader; but somehow or other it brought vividly before my mind the task that the Sunday-school teachers and superintendents have upon their shoulders—the leading of these precious little souls to Christ Jesus. And then burst upon me, as never before, the words, “Suffer the little children to come unto me, and forbid them not.”

After the school was over, the little blue-eyed chick came up to me again, and the superintendent came at the same time. It was *his* little girl. It seemed to me as if I loved them both—father and child—as though they had been near relatives all my life. I told her about my little Huber at home; then I asked her some questions.

“Will you tell me your name, my little friend?”

The only reply I got, however, was, “I had my hair cut yesterday;” and then she indulged in her childish fun again.

“But won’t you tell me how old you are?”

“Next May,” was all the reply I could get. Then her father asked me how I got on with my class. I looked up into his kindly face, but I did not dare to tell him the whole truth. Had I done so I should have said it was one of the happiest half-hours of my life. I decided to say only, that, for my part, I had enjoyed it exceedingly. One of the members of the class—a bright, intelligent lady, who had strengthened me by her kind and wise words, added:

“And I am glad to say, Mr. Superintendent, that the class have enjoyed it also—at least, I have enjoyed it very much.”

What a nice lot of men and women were in that class! Was it possible that Manitou contained more good people than all the rest of the world, or was it only the peace of Christ Jesus, and that his great love had found a lodging-place in my heart that Sunday morning, that had made me feel like loving every thing and everybody?

There was another little circumstance that made that morning service so bright and glorious. Right back of the pulpit, in beautiful letters on the wall, were the following words:

“Let the words of my mouth, and the meditations of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer.”

When those words first burst on my view, it seemed that it was the most grand and glorious text that the Bible ever gave to poor humanity; and the oftener I read the words, the brighter they shone forth, as a beautiful prayer for weak and sinful people like myself. I thought of my wavering decision of the night before; but I can not tell you how I thanked God that I had *not* chosen to travel on Sunday. During my stay I had had several arguments, and some pretty serious talks, with avowed infidels and

skeptics; and the thought came into my mind, Is there an individual in the whole wide world who can honestly raise the slightest objection, or offer a single breath of criticism, on that wonderful prayer?

I can’t tell you the *wide* difference between having the prospect before *me* of Sunday travel, contrasted with a day among Christian worshipers. Do you say it is an easy matter to make *me* happy? My friend, it is an easy matter to make *everybody* happy, when they are in the path of duty. A thrill of peace and joy poured down into my soul so like that of my first experience, when I dropped the whole world for Christ Jesus, that it was hard for me to keep the tears back. What a bright and pretty gathering of boys and girls, and what a class full of intelligent and refined gentlemen and ladies were in my class. My heart went out in love to every one of them. I read the text again and again, dwelling longingly on the different shades of meaning. Did David ever long for the presence of God in his heart as *I* have longed, and did he ever have cause to pray as *I* have prayed, that his inmost thoughts might be acceptable to God? How exactly it fits with my temptation and triumph of yesterday! To-morrow I am going to visit, and describe to you some of the natural curiosities about here; but, dear friends, there is nothing in this whole universe to be compared with the riches—the *boundless* and *inexhaustible* riches of the simple words of the text I have quoted.

RECENT DEVELOPMENTS

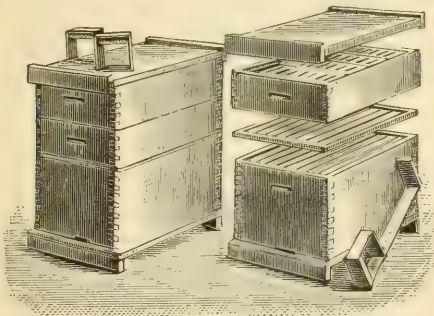
CONDUCTED BY ERNEST R. ROOT.

THE DOVETAILED HIVE.

THE tendency of the times is more and more toward simplicity. The most practical honey-producers—those who own colonies by the hundreds and not by the tens, incline toward (if they do not already use) cheap, substantial, and simple hives and fixtures. Indeed, the price of honey is such that they can not afford expensive and complicated arrangements. In the past few months our foreman (Mr. J. S. Warner), Mr. Calvert, and your humble servant, have been considering the question of a still simpler and still cheaper hive than the Simplicity, though not necessarily cheaper in quality. Dr. C. C. Miller’s advice and assistance have been freely sought through correspondence. After a good deal of arguing and discussion, and a careful study of the needs of the times, we have at last brought out what we shall call the Dovetailed hive, a cut of which we append below.

As the name indicates, its distinctive feature is the dovetailed corners. To do this work we have recently put in some expensive machinery. Almost any child can drive such a hive together. If each of the dovetailed ends be dipped into paint before driving them together, and then cross-nailed, you have a joint that, for strength, can hardly be surpassed. No iron gauge-frames nor any thing of the sort is necessary. The hive proper is simply an eight-frame hive

with square edges (that is, unbeveled), having a plain bottom-board cleated at each end; a plain cover, likewise cleated, with this difference, that the cleats have a longitudinal groove $\frac{1}{8}$ inch wide, and $\frac{1}{8}$ inch deep, to admit the ends of the cover-board, as shown in the cut. The front of the bottom-board is cut out so as to permit contracting the entrance in the same manner as is done with the Simplicity hive with the alighting-board. The brood-chamber may be used for an upper story for extracting if desired. Each body is of the width of an eight-frame hive, and deeper than a Simplicity frame by a bee-space, making a total depth of exactly $9\frac{1}{2}$ inches. The frame-rabbets are simply plain wood bearings (without tin rabbets), which bring the top-bar of the frame flush with the top edge of the hive. "Take care, there!" you will say; "you have made a mistake—there should be a bee-space above the frames in the hive." Let me explain. In order that the brood-chamber may be used interchangeably as a brood-chamber proper and as an extracting super, you will see, upon a moment's reflection, that the body should be deeper by a bee-space than the extracting-frame. If a bee-space is left on top, and a bee-space below, when one

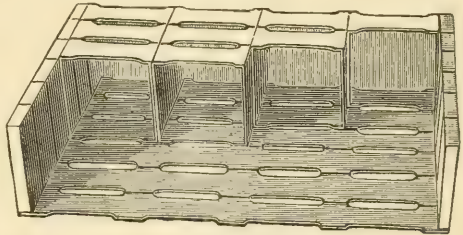


THE DOVETAILED HIVE.

body is put on another there will be a distance of $\frac{1}{8}$ inch, calling a bee-space $\frac{5}{16}$ of an inch. How, then, do we provide for a bee-space above the frames? Use a honey-board, to be sure, bee-spaced on both sides. Judging from reports that have come in, and the statements of our most extensive honey-producers, and from our own experience, we feel sure that the honey-board will save not only time but patience, and in the present state of our knowledge of apiculture it is in reality an indispensable fixture to the hive; therefore the honey-board of the Dovetailed hive is to have a bee-space $\frac{5}{16}$ inch above and below the slats or zinc, as the case may be.

We now come to the surplus apartments. In the present state of progress in hives and supers, you and I scarcely know what kind of a surplus arrangement we may be using or advocating, say two years hence. Dr. Miller has made a similar statement in print, I think, in his "Year Among the Bees." In view of this fact, were it not well, since we are making a new hive, to construct a super for it that can, with no very great difficulty, be adapted either to a

T super proper or to a wide-frame arrangement? If this year we adopt the T super, possibly next year we shall find it to our advantage and to our interest to change to a wide-frame arrangement, if we can do so at no very great expense. Well, a T super should be $4\frac{1}{2}$ inches deep—that is, $\frac{3}{8}$ inch deeper than the $4\frac{1}{4}$ section, so as to leave, after proper shrinkage, $\frac{5}{16}$ bee-space above the sections. With this fact in view, how shall we adapt it to a wide-frame arrangement? We did it this way. The engraving below shows the section-holders, as we shall call them, to distinguish them from the wide frames proper.



SECTION-HOLDERS FOR THE DOVETAILED SUPER.

You will notice there are no top-bars, the reason of which will be made obvious presently. The end-bars are $\frac{1}{8}$ inch thick, and exactly $4\frac{1}{4}$ inches long, and $1\frac{1}{8}$ inches wide. The bottom-bars have openings to correspond with the openings in $1\frac{1}{8}$ sections, and are exactly $\frac{3}{8}$ inch thick. Our super-shell, you will remember, is $4\frac{1}{2}$ inches deep. Into this we set these section-holders, the ends of which are supported by a strip of tin. The sections are $4\frac{1}{4}$ inches deep; adding to this $\frac{3}{8}$ for the bottom-bar of the section-holder we have $4\frac{7}{8}$. This figure, subtracted from $4\frac{1}{2}$ (the total depth of the super) will leave $\frac{3}{8}$ bee-space above the sections. This bee-space, I grant, is rather scant; but there are those who claim that if there is just barely enough room for bees to crawl through, they will not propolize. At any rate, we deemed it better to leave the top of the sections unprotected by a top-bar than to protect them. One of my greatest objections to the wide frame proper is that propolis is deposited between the top-bar of the wide frame and the top of the sections, for the reason that the sections sag away from the top-bar; but the amount of propolis is reduced to a minimum between the bottom of the sections and the bottom-bar, for the reason that gravity draws the section close in contact with the support below. Now, then, if we should prefer to use T supers, we shall have to close the space up at the two ends, with a board $\frac{1}{8}$ inch thick—the space occupied by the end-bars of the section-holders. The T tins may then be put in, and the sections be placed in the super, and an ordinary T super is the result. You may urge, why not make the T super shorter? For a reason I will not attempt to explain here, I will say this can not be done very easily, so that the adoption of the $\frac{1}{8}$ -inch board seems to be the only solution to us thus far.

WIDE FRAMES VERSUS SECTION-HOLDERS.

The facility with which wide frames or similar arrangements can be shifted from outside to center, and vice versa, is a strong argument in their favor. While our section-holders possess this feature, unlike wide frames (in the absence of the top-bar) they can be filled and emptied easily. While I do not wish to do any thing to discourage any one from taking hold of the justly popular T super, I wish simply to say that our section-holders are better adapted to the Dovetailed hive.

Our dovetailed supers can be used for the half-depth bodies, if desired; and one of them placed upon the other will take extracting frames when circumstances require it—for instance, an unexpected rush of honey when the bee-keeper is unprepared with extra bodies. Each of these super-shells has the ends rabbeted for the purpose; and right here I want to say that this rabbet affords the nicest kinds of finger room to grasp the section-holders. The fingers can be let down into the rabbet, and grasp the upper edge of any individual holder, so that you will see this rabbet may be made to serve a double purpose.

IS THIS HIVE NEW OR OLD?

This hive is not new. In appearance it is similar to the old-style eight-frame Heddon-Langstroth. As we paid Mr. Heddon, some three or four years ago, \$100 for using any or all the features of this particular hive that we thought proper (none of which we have used hitherto until now), we are sure that he will not accuse us of copying without credit, or without a just recompense. The feature of dovetailing is, of course, not new, but it has quite recently been applied on a large scale to hives, and that by some of our good friends in Australia, and by our friend Mr. Danzenbaker, of Claymont, Del.

I want to say right here, that, although Dr. Miller has helped us not a little by way of suggestions, it is not just exactly his ideal hive. With the T super, pure and simple, one that would not require taking up the space with loose boards, and with a reversible bottom-board, it would be just his ideal, exactly; but he agrees that, for the masses, the hive as we propose making it is about right, although his individual needs would require one or two slight changes.

That this hive is considerably cheaper than the Simplicity or any of its combinations, you will see by comparing prices found in our Special Notices. In most cases it will be found from 25 to 33 per cent cheaper.

PRICE LISTS RECEIVED.

S. L. Watkins, Placerville, Cal., sends us a one-page list of honey and Carniolan bees.

J. M. Hanching, Spring, Ill., sends us a nice 12-page list of apianian supplies.

The W. T. Falconer Mfg. Co., Jamestown, N. Y., send us quite a complete list containing a list of apianian supplies.

Falmere, New York, sends us his list of bees, poultry, seeds, and pigs.

H. G. Frame, North Manchester, Ind., sends us a 4 page price list of queens and bees.

Hammer & Lathrop, Lewistown, Ohio, have just had printed at this office a 16-page list of bees, queens, etc.

We are now printing over Foster's annual list of supplies. It will be ready for delivery by the time this journal is read. The address is Mr. Vernon, Ia.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 1, 1889.

Let the words of my mouth, and the meditation of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer. PSALM 19:14.

GOOD SUBJECTS TO WRITE ABOUT.

We are glad to notice the evident disposition of our correspondents to review and reconsider the contents of "Our Question-Box" after they have been once submitted. The questions are selected and worded with great care, and are good subjects to write about.

HOW TO RAISE SWEET-POTATO PLANTS.

In answer to my request in the last issue, we have received up to this date 30 excellent articles on the subject, and I do not know but I shall put them all together in a little pamphlet. We will try to have it before our readers in some shape before time to commence operations. Please do not send any more.

GREAT IS TRUTH, AND WILL PREVAIL.

A FEW months ago I was saddened and somewhat discouraged because there seemed to be an attempt on the part of quite a good many men to revive patents on bee-hives; and even as good a man as our jovial friend D. A. Jones thought best to offer rights for sale. I am, however, much refreshed to notice the following in the *Canadian Bee Journal* of Jan. 23:

I object to patents on bee-hives, and am pleased to say that the simplest and most practical hives of the present day are unpatented, so that any one is at liberty to make for himself almost any hive which takes his fancy and suits his ideas of practicability.

OMITTING TO GIVE FULL ADDRESSES WHEN RENOVING.

RENEWALS and new names are coming in at a rapid rate. This, of course, is gratifying; but some of our good friends, on renewing, simply sign their names, without giving either postoffice or State. Please bear in mind that our subscription-list is arranged alphabetically according to postoffices; and unless we have your full name and address we can not very well renew your name without going to a great amount of trouble, and even then we sometimes have to give it up as a bad job. If we happen to have previous correspondence, or if the name happens to be on our ledgers, we can then find out what the postoffice is. Our subscription clerk informs us that, at the rate renewals are now coming in, there is about one a day which does not contain the proper address. A day or two ago we received a letter from a man, asking us to renew his subscription. He not only failed to give his postoffice and State, but he failed to give his initials. The postmark on the envelope showed that his State was Illinois. Knowing this, our clerk looked at our long list of Illinois subscribers,

and succeeded in finding the name. As a general rule we can not afford to do this, and consequently have to wait until the careless individual complains. A very little care on your part saves us a large amount of trouble.

FALSE STATEMENT IN REGARD TO THE ADULTERATION OF HONEY. SEE PAGE 163.

The clipping, entitled "Bogus Honey," has been sent us again. It was taken out of the *Albia* (Ia.) *Union*, and they credit it to the *Oskaloosa Herald*. If any of our readers live near these papers, or take them, will they help us by writing to the editors and inclose this number marked? We will furnish them just as many copies as they need.

THE PREMIUM BUSH LIMA BEAN FOR SUBSCRIBING AHEAD.

ANY one who pays up his subscription to the present date, or ahead of the present date, and then sends us another dollar for another year ahead, can have a package of Henderson's new Bush lima beans; and any one who takes *Gleanings*, no matter how or under what circumstances, can have a package of the *Ignotum* tomato seed on application. We give the above in answer to many inquiries.

THE AMERICAN BEE JOURNAL AND ITS BIOGRAPHY OF A. I. ROOT.

In the *American Bee Journal* for Feb. 23, page 117, appears a fine *Ives* engraving of the editor of *GLEANINGS*, together with a biographical sketch. We extend our hearty thanks to Bro. Newman, not only for the excellent engraving, but for the very, very kind words said of us at the end of the sketch, by himself. In speaking of our relations in the past, he says: "Mistakes have been made; but with both parties anxious only to be right, they have been readily adjusted." The italics are ours. We most heartily indorse these sentiments.

HOW TO MAKE HENS LAY.

FOR two winters past we have been starting our Brahmas to laying by feeding them cooked beans—the beans being the culls from those picked over for our market-wagon. There is no doubt about it. They will start them to laying within 48 hours. Well, a few days ago we had a surplus of hulled corn (boiled corn), and quite a lot of it was given to the Brahmas. We had been getting three eggs a day; but the day after they had the boiled corn we received seven eggs. Now, then, shall we say that cooked corn is as good as cooked beans, or even better? I think not. Shall we say, then, that cooked grain starts them to laying? Not necessarily. I think it is just this: A change of diet at just the right time. A good feed of raw cabbage, when they have not had any for some time, will at once set several hens to laying that had not been laying. Lettuce produces the same result; and for hot weather I think it is even better than cabbage.

APICULTURE IN SPAIN.

WITH the beginning of the year, friend Andreu, editor of the *Revista Apicola*, published in Mahon, a city in the Balearic Islands, off the east coast of Spain, has enlarged his neat little journal from 8 pages to 16, and prints it on nice calendered paper, and also puts on a cover. Friend Andreu is fully abreast with the spirit of the age, which seems in strange contrast with the conservative spirit of the Spaniards in general. Being free from such winters as we have here, although in the same latitude,

the question of wintering seems to cut no figure with them. The kindly editor not only writes Spanish, of course, but his letters in English show him to be even more familiar with our language than the majority of those who have always used it—see p. 516, 1888. The advent of his paper is always a source of pleasure, for it indicates the rapid spread of modern ideas of apiculture in that land of romance and song. By the way, it was here that, in 1796,

Old Ironsides at anchor lay.

In the harbor of Mahon:

A dead calm rested on the bay,

And the winds to sleep had gone.

When little Jack, the captain's son,

With gallant hardihood,

Climbed shroud and spar,

And then upon the main-truck rose and stood.

SHALL WE FOLLOW OUR SPIRITUAL LEADERS?

SEVERAL of the good friends of *GLEANINGS* have entered a mild protest to the position I take on page 101, Feb. 1. Now, there is not room, even if it were advisable, to discuss doctrinal points in theology in the pages of *GLEANINGS*. Such matters had much better be left, in my opinion, to the pastors of our respective churches, who have had a theological training and a theological education. Shall a member of a church confer with his pastor and get his advice on these points, or shall he go off on his own hook? It seems to me, dear friends, the man who leaves his church and pastor because they can not agree or think alike on all points is much like the man who leaves his wife because of little differences. If he gets a divorce and takes another wife, he has ten times more trouble than with his first one. If you think I am mistaken in the matter, see how such things turn out in your own neighborhood. By their fruits ye shall know them. First and foremost, and above all things, read your Bible carefully and prayerfully, then consult your pastor.

WANTED.

THE principal thing that seems to be wanted just now is some sort of a scheme to induce those who have much money and few wants to hand over some of the surplus to the rest of us who have many wants and "few" money. Now, I am not getting toward anarchy, for you know that is not like me. I am simply looking for plans to bring it about in a legitimate way. Raising lettuce and strawberries in greenhouses for rich folks to adorn their tables in the winter time is one of the ways. Gilt-edged butter comes in the same line. My brother-in-law took me to a restaurant in Cincinnati that is celebrated for the excellence of its steaks. The waiter gave each of us a great slice that might make a small man feel bashful until he had taken a taste of it. Why, my friends, it was away ahead of roast turkey or any thing in that line. This restaurant always keeps just that kind, and they have a host of customers among people who are not only willing but glad to pay an extra price to be sure of getting this extra corn-fed beef every time. At Baggs's Hotel, in Utica, N. Y., where each meal costs a dollar, every thing was gilt-edged. If you called for a baked potato it was a great whopper, roasted in the ashes, as in the good old times, and the quality of the potato was so choice that all you had to do was to break it in two, rap on the charred outside, and the smoking contents rattled out dry and fluffy. Twice in my life have I tasted such baked potatoes. The first time was more than forty years

ago, when grandmother used to bake Lady Fingers in the ashes on the hearth of the wide old fireplace. Well, the experiment stations say the sole trouble with the Lady Finger nowadays is, that it is an extremely poor yielder. And now you can see what it is that I want. I want a potato as good as the old-fashioned Lady Finger, that *yields well*. Can any of the brethren furnish it? If so, send me one or two by mail, and I will have Mrs. Root roast them in the ashes; and if they even come pretty near the Lady Finger we will give you a free advertisement of your seed. Surely somebody ought to have this potato. A catalogue is just at hand, offering 700 different varieties of potatoes. It would be a little sad if none of the 700 could come up to the Lady Finger as a baker.

We have at this date 8477 subscribers.

SPECIAL NOTICES.

We now have Dadant's Langstroth Revised, and can send them out by return mail. Price \$2.00. By freight or express, 15 cts. less.

WANTED—SPIDER-PLANT SEED.

Mail us a sample, tell us how much you have, and we will write you what we can pay for it. We want seed of last season's raising.

ALSIKE CLOVER.

We have a nice stock of alsike clover seed, to fill orders on short notice. I believe it is the nicest seed we ever had for sale. The secret is, we have had a good many samples to choose from, and selected only the best. Our prices: \$2.25 per peck; \$4.40 per half-bushel; \$8.50 per bushel. In lots of 5 bushels, \$8.00 per bushel.

THE IGNOTUM TOMATO SEED.

Since my last mention of it, we have given away about 1000 more packages, making 2000 in all. And now the friends begin again to say, "Send me a package if it is not all gone." Why, bless your hearts, there are at least 3000 more packages to be given to subscribers of GLEANINGS. Just say, "Send us a package of that tomato seed," and do not put in any thing about its being gone.

FOR SALE, ENGINE LATHE AT ONE-HALF PRICE.

It swings 15 inches over bed; takes 40-inches between centers; has both foot-power and counter-shaft; is back-gearred, screw-feed, and screw-cutting; cost \$150.00. Will clean up, paint, and pack for shipment, for \$75.00. It is now in use in our machine-room, and we would not think of selling it except that our work now demands a heavier and larger tool. This is undoubtedly a good opportunity for some one to secure a valuable tool cheap.

THE CHARTIER RADISH.

A great trade has sprung up on this favorite radish, and we have bought such large quantities of the seed of the originator, Wm. C. Beckett, that we can give the following low prices: 5 cts. per oz.; 10 cts. per $\frac{1}{4}$ lb.; 35 cts. per lb. If wanted by mail, add at the rate of 3 cts. per $\frac{1}{4}$ lb., or 9 cts. per lb., for postage and packing. See the latest issue of our seed catalogue, giving reductions on many kinds of staple seeds, issued Feb. 15—mailed free on application.

"KING OF THE GARDEN" LIMA BEANS.

Since my test (mentioned in another column) of dry lima beans, I have concluded that we did not quite appreciate the King of the Garden last summer. Their immense size makes it much easier to pick and shell a quart of them than the common limas, and they are certainly fully equal for table use. We planted quite a large patch of them last season, and we propose this season to plant a larger patch. Price 5 cts. a package; 15 cts. per half-pint; 50 cts. per quart; \$2.75 per peck, or \$10.00 per bushel.

THE CARPENTER'S STEEL SQUARE, AND ITS USES.

After long months of waiting and putting off our customers having orders in for the above book, we finally gave up all hopes of getting them again from the publisher, and accordingly sent back the money we had received, and crossed them out of our book-list. No sooner had this been done than we received word from the publisher that the books were out at last. We sent him an order by first mail, and now have 200 in stock, ready to send by return mail for 17 cts. each, postpaid, or 15 with other goods by express or freight.

JAPANESE BUCKWHEAT.

We notice in most of the seed catalogues so far, that seedsmen are asking \$3.00 per bushel, retail, for new Japanese buckwheat. No doubt this extra price is to help pay for fancy lithograph covers and chromo pictures that come with the catalogues; but please remember that *our* price is only \$2.00 per bushel; \$1.25 per $\frac{1}{2}$ bushel; $\frac{1}{5}$ cts. per peck. In lots of five bushels or more, \$1.75 per bushel. We have a very large stock of very choice seed. We have made arrangements with a party in Wisconsin, whereby we can fill orders from that point, of two bushels or more, to customers in the West, to save freight.

PRICE LIST OF DOVETAILED HIVES.

We append here a list of prices on the Dovetailed hive, illustrated and described elsewhere in this issue. Please notice that we give prices in different quantities per hive, under the quantity named at the top of the column.

DOVETAILED HIVES PUT UP AND IN THE FLAT.					
Description.	Price each.	In lots of—			
		1	5	10	20 50
No. 1. Eight-frame Dovetailed hive, shown to the right, over, with one bottom, body, one super, slatted honey-board, 8 all-wood frames and cover, 1½ story, for comb honey, complete, put up and painted.		1 50	1 45	1 40	1 35
No. 1. Eight-fr. Dovetailed hive in flat, with sections, starters, and tin sep's.		1 20	1 00	90	85 80
No. 1. Eight-fr. Dovetailed hive, in flat, with frames and section-holders, but no sections, starters, nor separators		90	75	70	65 60
No. 2. Eight-frame Dovetailed hive, shown to the left, over, is furnished just like No. 1, with one more super added, making a two-story hive complete, put up painted.		2 00	1 95	1 90	1 85
No. 2. Eight-fr. Dovetailed hive in flat, with sect's, starters, and separa's.		1 50	1 30	1 25	1 20 1 15
No. 2. Eight-frame, Dovetailed, in flat, with frames and section-holders, but no starters, separators, nor sections		1 10	90	85	80 75
No. 3. Same as No. 1, except that it has T tins in the supers, instead of section-holders. Same price.					
No. 4. Same as No. 2, with T tins instead of section-holders. Same price.					
We will make the Dovetailed hive 10-frame instead of 8-frame, in any of above numbers, as follows:					
Nailed and painted, complete, 20 cts. each extra.					
In flat, complete, 15 cts. each extra.					
In flat, without sections, starters, or separators, 10 cts. each extra.					

KIND WORDS FROM OUR CUSTOMERS.

GLEANINGS is so valuable and interesting I should not want to do without it.
New Philadelphia, O. DR. G. L. TINKER.

Really, Bro. Root, and no "taffy," GLEANINGS does grow better and better. Thank you for the biographies. They are good.
N. Searsmont, Me., Jan. 9, 1889. H. E. MILLER.

The type-writer came all right. We are very much pleased with it. It is very nice, and a better machine than we supposed it to be.
Wells, Minn., Dec. 31, 1888. J. P. WEST.

We were really delighted with the account of the travels in California. Your way of describing it, and mentioning the little things, makes a person seem to be traveling with you. We think Ernest did well upon GLEANINGS while you were gone—not only well, but splendid. He gave us an excellent GLEANINGS, especially the last one.
Roseville, Ill., Dec. 15, 1888. MRS. L. C. AXTELL.

KIND WORDS FROM SWEDEN.

After describing our A B C book, our good friend Hj. Stahlhammer, editor of the *Svensk Bitidning* (*Swedish Bee-Journal*), deposes as follows in regard to the author of the book:

Mr. Root's name alone is a guarantee for the worth of this book—a man of whom it may be said, "In him falsehood finds no place," and who in faith and business is a Christian in the best sense of the word. We can, therefore, recommend this book in the highest terms, as it is fully up to the times.

[If the above is "too good," we hope it will be excused by the fact that our education in the Swedish language was somewhat neglected when we went to school, and hence a "new version" might modify the meaning somewhat. But we strongly suspect that the "sum and substance" is about all right.]

A B C OF BEE CULTURE.

"What's that?" remarked the editor as a package was handed him. As no one replied, he thought it might be well to investigate. Was it a bomb? Never! It was a copy of the "A B C of Bee Culture," that pioneer book on the art of progressive bee-keeping, which gives its readers the bee-fever so badly that sometimes they never get over it—you see it's worse than a bomb (?) for the bee-keeper. The book has now reached its 37th thousand; been recently revised; many new engravings added, and, to make it what friend Root used to call a "whooper," the biographies of 21 "noted bee-keepers" add much to its value. The great beauty of this work, it seems to us, lies in the simplicity and clearness with which all the details and manipulations are given; making it pre-eminently a book for the beginner. It is published by A. I. Root, Medina, O. Price \$1.25.—*Bee-Hive, Jan. 1.*

WHAT A. E. MANUM THINKS OF GLEANINGS.

I can not let the year 1888 pass away without returning to you the warmest thanks of one who is a steady reader of *GLEANINGS*, for the good work you have accomplished in the past few years. It has been an era of great success to you, and, as I firmly believe, a great benefit to the many bee-keepers of this country. Although the year 1888 has been somewhat disastrous to the bee-keepers of America, your good and timely counsel has given courage and hope that the coming year will bring prosperity and gladness to your many readers. You are entitled to the thanks of the great body of bee-keepers, and the increase of your circulation shows that many of them are not unmindful of their obligations. You have given us a bright, clean, able, educational magazine at one dollar a year, which shows hard work and good business management, and I am pleased to notice the success which is so justly your due. A. E. MANUM.

Bristol, Vt., Dec. 27, 1888.

WHAT TO DO, AND HOW TO BE HAPPY, ETC.;
WHAT A READER OF THE BOOK SAYS OF IT.

On receiving your book, "What to Do," I thought I would write just a formal note, acknowledging the receipt of the same. I began to read the book, became interested, and put off writing, until now I feel under obligations to give you my sincere thanks, for the pleasure and instruction contained therein. To simply say, "I like the work," seems cold and expressionless; therefore I will say it gave me real pleasure to read it, and I believe it will be greatly to my benefit to obey its instructions.

A great many books are written, giving instructions in garden and farm work, which are so filled with technical terms it is hard to find out what they mean. The language in "What to Do" is very easy to understand, and its author seems each time to put just the right word in just the right place. In some other works of this kind (if their author's plans were carried out) it would require a very heavy outlay of money, which the poor farmer or gardener could in no wise afford for the purpose. The plans in this work do not call for any very great outlay of money, but such outlay as most men can afford who follow the business of either farming or gardening. I speak of farming and gardening both, because the reading of your book would benefit both.

I own a small farm; have lived nearly all my life

on a farm, and am deeply in love with farming as an occupation at once "the most ennobling and healthful" of any. A good garden is a great advantage to the farmer who gives a share of his time to its culture, but by many farmers it is often neglected. Of course, any book which helps in gardening would also help in farming.

There is another feature shown in your work, which makes me wish I were personally acquainted with its author; and that is the trustful leaving of all things in the hands of "Him in whom we live and move and have our being." Each chapter is introduced with a text—an appropriate beginning surely—and love to God and your fellow-man seems no small share of the whole work. I have derived great pleasure in the reading of the work, and great satisfaction in thinking its author was a child of God, and that, while he was instructing some how to sow seeds and cultivate them, he was himself sowing seeds of immortality which might spring up and bear fruit which never would decay. Now I trust I have not tired you, for less would not satisfy me. I hope we may meet at some future time, and may that hope become a certainty. We are both striving for a crown of glory, and may we both be so blest as to win and wear it.

JAMES A. FIELD.

Farmer, Defiance Co., O., Jan. 26, 1889.

WHAT TO DO,

—AND—

How to Be Happy While Doing It.

The above book, by A. I. Root, is a compilation of papers published in *GLEANINGS* in 1886, '7, and 8. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. I think the book will be well worth the price, not only to those out of employment, but to any one who loves home and rural industries. Price in paper covers, 50 cts.; cloth, 75 cts. If wanted by mail, add 8 and 10c respectively.

A. I. ROOT, Medina, Ohio.

MUTH'S
HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (*Mention Gleanings.*) 1tfdb

DADANT'S FOUNDATION FACTORY, WHOLESALE and RETAIL.
See advertisement in another column. 3tfdb

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND
SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3-14db

Box 11. Higginsville, Mo.

(See List of Dealers in *GLEANINGS* in another column.)

JAPANESE BUCKWHEAT!

By freight or express, not prepaid.

Per bu., \$2.00; per 1-bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail post-paid, 25 cts. Address

John C. Gilliland,
Bloomfield, Greene Co., Ind.

B. J. MILLER & CO., NAPPANEE, IND.,

BEE - HIVES AND ITALIAN QUEENS.

4½x1½ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 1tfdb

THE . BEST . HIVES FOR THE LEAST MONEY.

BOTH SINGLE AND DOUBLE WALLED.

If you need any hives don't fail to send for my price list, as I make a specialty of hives, and think I have the best arranged hives on the market, at bottom prices. My hives take the Simplicity frame. 3tdb

J. A. ROE, Union City, Ind.

1tfdb In responding to this advertisement mention GLEANINGS.

LOOK OUT!

One of the best bee locations in the Fruit Belt of Michigan. Small fruit-farm (44 acres) to sell—Bees and "fixings" cheap. For particulars address

J. O. SHEARMAN,

New Richmond, - 3tdfb - Michigan.

1tfdb In responding to this advertisement mention GLEANINGS.

BIG BUCKEYE FIELD CORN.

NEW TOMATOES

GOLD COIN SWEET CORN.

Our illustrated Annual of Tested SEEDS, BULBS, TOOLS, &c., mailed free to all seed buyers. Two Colored Plates. It tells all about SEEDS & Gardening. The best guide. Prices Low. Seeds Reliable. Used by Thousands of Farmers and Gardeners and no complaints. Originators of Paragon, Acme, Perfection, Favorite Beauty, and other Tomatoes. **A. W. LIVINGSTON'S SONS, P. O. Box 273, Columbus, O.**

OUR HOBBY

1tfdb In responding to this advertisement mention GLEANINGS.

STRAW BLACK GOOSE RASPBERRIES

CURRENTS and GRAPES.

ADA Large, Late, Hardy, Prolific, Black RASPBERRY, Latest of all in Ripening.

FIRST-CLASS PLANTS AT LOW RATES.

THEO. F. LONGENECKER,

Correspondence Solicited. 3tdfb Dayton, Ohio.

1tfdb In responding to this advertisement mention GLEANINGS.



Bless Your Souls!

My brother farmers, when you can receive one containing just as many and very probably more varieties and all new vegetables that are really valuable, for just **NOTHING!** It may have less paint about the covers, but, great Scott! we are not after paint, but seed, fresh and true to name, such as will make with a master's hand its own picture all over our farms and gardens; seed I am not afraid to **WARRANT** on the cover of my catalogue. Come, my fellow farmers, and join the thousands, who for thirty years have been users of my seed; why, we were a goodly company and having pleasant times together before the great majority of the present race of seedsmen (bless the boys!) had left their nurse's arms! Send for a catalogue. **JAMES J. H. GREGORY, Marblehead, Mass.**

1tfdb In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4½x1½ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

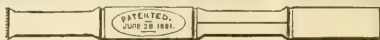
G. B. LEWIS & CO., Watertown, Wis.

1tfdb In responding to this advertisement mention GLEANINGS.

J. FORNCROOK & CO.,

MANUFACTURERS OF THE

"BOSS" ONE - PIECE SECTIONS,



Will furnish you, the coming season, ONE-PIECE SECTIONS as cheap as the cheapest. **WRITE FOR PRICES.**

Watertown, Wis., Jan. 1, 1889.

1-11d

1tfdb In responding to this advertisement mention GLEANINGS.

FOR SALE.

About 20 Colonies of Good Italian Bees

IN ROOT'S PORTICO HIVE.

Will close out at a bargain. Reason for selling, away at school. **D. H. TOWNLEY.**

4-5d

ELIZABETH, UNION CO., N. J.

NEARLY THIRTY TONS

—OF—

DADANT'S FOUNDATION

SOLD IN 1887.

It is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nyswander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb., and numerous other dealers.

Write for free samples, and price list of bee supplies. We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

CHAS. DADANT & SON,

3btfdb **Hamilton, Hancock Co., Illinois.**

1tfdb In responding to this advertisement mention GLEANINGS.

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Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock, and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

FOR SALE.—A few black and hybrid queens, 35 and 50 cents. YOUNG G. LEE, Charlotte Harbor, Fla.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickson, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb.; C. D. Battey, Peterboro, Madison Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

X ALSIKE X

WHOLESALE AND RETAIL; BEST OF SEED.

X ALSO GARDEN SEEDS X

C. M. GOODSPEED, 4tfdb THORN HILL, N. Y.

In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4½x4½ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. Itfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

1889. Italian Queens. 1889.

For \$1.00 From Jan. till June.

2-6d

N. ADAMS, Sorrento, Lake Co., Fla.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, \$2.00; after June 1, \$1.50. Untested queens, \$1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,

4-9d

Bryant Station, Maury Co., Tenn.

1889. Italian Queens. 1889.

Having moved 8 miles from Nicholasville to a better location for bees, I will continue to raise queens, and more extensively than formerly. I will have the very best of Italians only. Select tested queens, in April, \$3.00; May, \$2.50; June, \$2.00; July 1 to Nov. 1, \$1.50. Queens warranted purely mated, \$1.00; 6 for \$5.00. Make money orders payable at Nicholasville. Send for circular.

Address

J. T. WILSON,

4-5fd

Little Hickman, Jess. Co., Ky.

In responding to this advertisement mention GLEANINGS.

STRAW
BLACK
GOOSE
RASPB
DEW

CURRANTS and GRAPES.

ADA Large, Late, Hardy, Prolific, Black RASPBERRY, Latest of all in Ripening.

FIRST-CLASS * PLANTS * AT * LOW * RATES.

THEO. F. LONGENECKER,

Correspondence Solicited. 3tfdb Dayton, Ohio.

In responding to this advertisement mention GLEANINGS.

JAPANESE BUCKWHEAT!

By freight or express, not prepaid.

Per bu., \$2.00; per ½-bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts.; per lb. by mail postpaid, 25 cts.

Address

John C. Gilliland,

Bloomfield, Greene Co., Ind.

EARLY QUEENS. I will send young queens by return mail from this date, Jan. 25, 1889.

5-6d MRS. A. A. NEEDHAM, Sorrento, Lake Co., Fla.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) Itfdb

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—Man and wife to keep house for a farmer (single man). Good house of seven rooms. Two miles from postoffice. No better place in Ohio for bee-keeping or market-gardening. Chance for an enterprising man to handle several colonies, as farm is $1\frac{1}{2}$ miles long by $\frac{1}{2}$ mile wide. Four manufacturing towns from 2 to 8 miles from farm, with populations of 503, 2500, 10,000, 25,000. No farm hands to board. 6d R. L. KING, Vanlue, O.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first. A. F. BRIGHT, 31tdb Mazeppa, Wabasha Co., Minn.

WANTED.—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest. R. H. CAMPBELL, 31tdb Madison, Morgan Co., Ga.

WANTED.—To exchange Italian bees for timber or a "Springfield roadster." L. HEINE, 31tdb Bellmore, Queens Co., N. Y.

WANTED! Bee-Help. Will engage on favorable terms two young men, desirous of learning practical apiculture. None but strictly temperate need apply. S. I. FREEBORN, Ithaca, Wis. 47db

WANTED.—To exchange one cutter-head, one dovetailing mandrel with saws, one six-inch rubber-belt, 30 ft. long; 50 ft. of three-inch rubber-belt, all as good as new, for bees or bee-keepers' supplies; also one six-inch Pelham fdn. mill. 41tdb THOMAS GEDYE, Kangley, LaSalle Co., Ill.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address OTTO KLEINOW, 41tdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange my new price list of pure Italian bees and Poland-China swine for your name and address written plainly on a postal card. N. A. KNAPP, Rochester, Lorain Co., O. 567db

WANTED.—To exchange 25 new improved chaff hives (Rooft's pattern), packed ready for use, and about 400 fine brood-combs, at 10c each, for bees. Correspondence solicited. Address 5-6d W. H. SWIGART, Dixon, Ill.

WANTED.—All who are interested in thoroughbred poultry to send for my new illustrated circular. Valuable information given free of charge. S. P. YODER, 5-6d East Lewistown, Mahoning Co., O.

WANTED.—To exchange my 20-page price list for your name. W. D. SOPER, Jackson, Mich. 51tdb

WANTED.—To exchange Empire State potatoes for bee-supplies or Barnes foot-power combined saw. FRED MYERS, Sharon, Pa. 5d

TO exchange, one set of International Encyclopedia, 10 edition 1888, 15 volumes; also one set Scott's Commentary on Bible, six volumes, both in good order, at bargain, for extracted honey or offers. A. H. VAN DOREN, Mons, Virginia, 5-6-7d

WANTED.—Some one to rent over 500 acres on shares or money rent, in lots to suit renter, either for farming or gardening; well-drained swamp, fine land for market-gardening, and is from two to eight miles from four cities with populations from 500 to 25,000. For particulars address 6 R. L. KING, Vanlue, O.

WANTED.—Situation as apiarist; age 20, 5 years' experience; New York or New England preferred. Also to exchange Cuthbert raspberry-plants or Roth's saw-filers for supplies. Address E. B. KIBBE, South Cuyler, Cort. Co., N. Y.

WANTED.—To exchange for bees fine field-trained setter dog; bargain given; write for particulars. Also \$100 to \$200 worth of bees, queens, empty combs, sections, pure Japanese buckwheat, etc. Who makes us the best offer? 6d C. F. LANE, Lexington, Mo.

WANTED.—Situation with some apiarist by single man of 22; 5 years' experience. Address WM. HEXWOOD, Stafford, Genesee Co., N. Y.

WANTED.—To exchange early Italian queens for 10-inch foundation-mill, Novice extractor, and supplies. YOUNG G. LEE, Charlotte Harbor, Fla. 6-7d

WANTED.—To exchange bees or apiarian supplies for raspberry and strawberry plants. 6d J. B. MURRAY, Ada, O.

WANTED.—To exchange family library and Sunday-school books, such as Bible Dictionary, Cruden's Concordance, and juvenile books of all kinds for apiarian supplies, extracted honey, or any thing useful. STEPHEN ROESE, 6d Box 51, Maiden Rock, Wis.

WANTED.—To exchange a few full colonies of bees for a small foundation-machine, or thin foundation; also for one-piece $4\frac{1}{4}$ x $4\frac{1}{4}$ sections. Good reference. D. F. LASHIER, 6d Hooper, Broome Co., N. Y.

WANTED.—A situation with some apiarist. I understand theory, experience limited. Agreements on addressing F. S. FEEKS, 6-7d 1604 Lamine St., Sedalia, Mo.

WANTED.—To exchange. Box machine, good as new, groover swing saw; cost \$150. Root 4-piece section machine, \$35; saw bench with arbor, boring attachment, \$40; 20 ft. shafting with hangers; 12 cast-iron pulleys, from 10 to 30 inch; grindstone, cost \$75, for a young sound driving horse. 6d J. B. MASON, Mechanic Falls, Me.

WANTED.—To exchange for thin or heavy foundation, or offers, queens or nuclei, one-story Simplicity hives. Send for price list. MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y. Chenango Valley Apiary. 61tdb

HOW TO MANAGE BEES; OR, BEE-KEEPING FOR THE "MASSES."

Every farmer, and all beginners in bee-keeping, as well as those more advanced, should have it, as it is especially adapted to their wants. Fully up to date. Price \$1.00, by mail. In beautiful paper covers. Illustrated. Address 6d W. S. VANDRUFF, Waynesburg, Pa.

☞ In responding to this advertisement mention GLEANINGS.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION. Get advertisement in another column.

ALSIKE CLOVER SEED.

\$8.00 per bushel; \$2.00 per peck; 1 lb. by mail, 25 cts. 6d O. A. TROWBRIDGE, Columbus, Wis.

WHITE Wyandotte and Houdan Cockerels, very choice, and strictly pure. Have more than I can use. Will box and ship for \$2.00 each—just half price. Eggs for hatching, 10 cts. each; 40 or more, 6 cts. each; or will exchange for bee-supplies. 61tdb JAS. EVANS, Box 89, Schaghticoke, N. Y.

WANTED.—25 buyers. A 50-lb. sack of nice dried mountain apricots for \$4.00. No sulphur. Send P. O. order on Hueneme to C. M. DRAKE, 6d Springfield, Ventura Co., Cal.

Italian Bees and Queens, Early!

After May 15
 Imported Ital. queens (1888 imp.)...\$5.50 \$5.00
 Tested " " " 2.25 1.75
 Untested " " " 1.00; three, 2 75 2.60
 One-frame nucleus, \$1.25; 2-fr. nucl., \$2.00; 10 or more at a discount. Write for what you want. Ready now to ship. Safe arrival guaranteed; 10 per cent discount on orders booked for 20 days. Make money orders payable at Clifton. 3-8db

S. H. COLWICK, Norse, Bosque Co., Tex.

In responding to this advertisement mention GLEANINGS.

PINELAND & BUCKEYE INCUBATORS!

Indoor and outdoor brooders. Send stamp for circular. PINELAND INCUBATOR AND BROODER CO., 6d Jamesburg, N. J.

Handel's Swarm Securing and Hiving Funnel

Is warranted to give satisfaction if directions (which go with it) are followed. With it you can bag a swarm clustered 20 ft. or more from the ground, and have them entering the hive in a minute.

Sample by mail, \$1.00; by express, per doz., \$6.00.

6d JOHN HANDEL, Savanna, Ill.

In responding to this advertisement mention GLEANINGS.

FOR SALE!

FARM NEAR MITCHELL, DAKOTA.

One mile directly north of the city of Mitchell, Dakota, 1/2 section of improved land, well watered by Firesteel Creek, well fenced, and good buildings; splendid for stock of all kinds, and general farming. For particulars address J. H. ROOT, 6d Tempe, Maricopa Co., Arizona Ter.

Sections by the Bushel!

My sections will hereafter be packed in bushel boxes, so every one buying 500 sections will get a box worth 15c. Sections only \$3.00 per M. Send for price list. 6-7d W. D. SOPER, Box 1473, Jackson, Mich.

In responding to this advertisement mention GLEANINGS.

Sweet Potatoes for Seed.

Yellow Jersey stock. Sweet potatoes are low this season. For prices address 6-7d JASPER SMOCK, Terre Haute, Ind.

For Sale!

Seventeen colonies of bees with supplies pertaining thereto. Will sell any number. Address 6d MIFFLIN RASIN, Jenkintown, Pa.

POULTRY FENCE. Galvanized wire netting % ct. per sq. ft. P. DURYEE & Co., 6d 68 Vesey St., N. Y.

IF YOU ARE IN WANT OF

BEEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

OLIVER HOOVER & CO., 4tfdb Snydertown, Pa.

In responding to this advertisement mention GLEANINGS.

BEEES. IF YOU WANT BEEES,

Please Write for Prices.

4-9db S. A. SHUCK, LIVERPOOL, ILL.

In responding to this advertisement mention GLEANINGS.

Read A. J. King's advertisement on another page of this issue.

For Sale Cheap.

The apiary (140 stands of bees, hives, etc.), belonging to the estate of Dr. G. W. Young, deceased. A rare opportunity. Address 5-6-7d ALBERT G. YOUNG, Adm'r, Lexington, Mo.



THIS unique little engraving represents Cupid "clothed and in his right mind." It also shows that, when busy with the pretty flowers, he has no use for his bow and arrows. The fiery darts lie unused at his feet. His action in this

respect reminds us of one trait in the character of a bee: when intent upon the blossoms she has no inclination to use her "fiery dart." There is, however, quite a difference in bees in this respect. Some are far more inclined than others to thrust in the "barbed arrows." In the character of bees there are still other peculiarities. Some are more industrious than others; some cling more tightly to the combs; some cap the honey more white; some work more readily in the supers, etc. There is not space here to enumerate all the characteristics of each variety of bees; but in the

BEE-KEEPERS' REVIEW

for March much space is given to the discussion of: "Which are the best bees?" The same bee may not be the best for every purpose and all localities. If you are in doubt as to which is the best bee for you, read this number. It will be sent free, and with it will be sent the May and June numbers of 1888.

Price of the REVIEW, 50 cts. a year. Back numbers furnished.

The Production of Comb Honey is a neat little book of 45 pages; price 25 cts. This book and the REVIEW one year for 65 cts. For \$1.00 the REVIEW will be sent two years, and the book "thrown in." Stamps taken, either U. S. or Canadian. 613 Wood St. W. Z. HUTCHINSON, 6d Flint, Mich.

In responding to this advertisement mention GLEANINGS.

EARLY + QUEENS

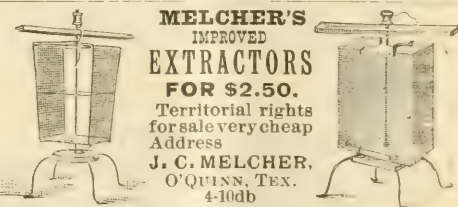
ALL ITALIANS
 S. N. OSHTHIE

	Apr.	May.
1 untested queen	\$1.00	\$1.00
3 " "	3 00	2.50
1 virgin " "	\$6 per doz 60	60
1 tested " "	3.00	2.50
3 " "	7.50	6.00

 2 and 3 fr. nuclei; special rates to dealers. South Carolina is the best State in the South for early queens. The climate is well adapted to queen-rearing, and it takes but 4 or 5 days to send them through the mails to any part of the Northern States or Canada. Prompt shipment and safe arrival guaranteed. W. J. ELLISON, Stateburg, Sumter Co., S. C.

In responding to this advertisement mention GLEANINGS.

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION. See advertisement in another column.



In responding to this advertisement mention GLEANINGS.

READ, C. H. McFadden Still Works WAX.

Good work guaranteed. Send for sample foundation and price list of Italian bees, queens, and wax working. 4-10db CLARKSBURG, MONITEAU CO., MO.

CHAS. M. GRIFFING, Shelter Island, Suffolk Co., N. Y. P. Rocks, Light Brahmas, Langshans, Laced Wyandottes. 6d

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—Honey.—Fair demand for comb honey. Extracted, scarce and in good demand at 8 cents for both white and amber.

Mar. 9. CLEMONS, CLOON & Co.,
Kansas City, Mo.

ST. LOUIS.—Honey.—Actually there is no demand, and, with the exception of occasional inquiries, the market is quite dead.

Mar. 9. D. G. TUTT GRO. Co.,
St. Louis, Mo.

DETROIT.—Honey.—Sales continue to be slow; supply about equal to the demand. The quality seems rather poorer than usual. Quotations same as last. *Beeswax.*—There is a little more call for this, but no change in prices.

Mar. 9. M. H. HUNT,
Bell Branch, Mich.

BOSTON.—Honey.—Our market is very strong and active for white honey. We quote: Best 1-lb. comb, 18¢@20; 2-lb., 16¢@18. Extracted, 8¢@9.

Beeswax, 24. Stock on hand very light.

Mar. 9. BLAKE & RIPLEY,
Boston, Mass.

CHICAGO.—Honey.—Honey sells in a small way at 16¢@17 for the best white comb, in pound sections; all other grades of comb are dull. Extracted is steady at 7¢@8; off color and dark, 6¢@7. *Beeswax*, 22.

Mar. 8. R. A. BUENNETT,
161 So. Water St., Chicago, Ill.

CINCINNATI.—Honey.—There is no improvement in the market excepting in the demand for dark or extracted honey, which is scarce. We quote extracted honey at 5¢@8 on arrival. Comb honey at 12¢@15 in the jobbing way. *Beeswax.*—Demand is good at 20¢@22 on arrival for good to choice yellow.

Mar. 11. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

FOR SALE.—Ten 60-lb. cans of first-class extracted honey, at 8c per lb.; has just been liquefied, and will pour readily from cans. Sample for 2-cent stamp.

R. I. BARBER, E. Washington St.,
Bloomington, McLean Co., Ill.

I still have a few 60-lb. cans of choice light honey that I will sell at \$5.00 per can (60 lbs. net), sample free.

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

FOR SALE.—1500 lbs. of clover and heart's-ease honey, mixed; by the barrel, 7c; in 60-lb. square cans, 7½c, F. O. B. cars at Dixon. Samples free by mail.

EZRA BAER, Dixon, Ill.

BEES and QUEENS!

Ready to Ship.

Friends, if you are in need of queens or bees to replace in hives where they have been lost during the winter, I can accommodate you at the following low prices: Italian bees, ½ lb., 65 cts.; 1 lb., \$1.00. Untested queens, \$1.00; tested, \$1.50. Hybrid bees, ½ lb., 50 cts.; 1 lb., 90 cts. Hybrid queens, 75 cts. Prices by the quantity will be sent on application.

6-7-9-11d

W. S. CAUTHEN,
Heath Spring, Lancaster Co., S. C.

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.

ITALIAN QUEENS.

Tested, \$2.00, \$1.50, and \$1.25, in Apr., May and June. One untested, May, \$1.00; after June 1st, .75.

Three untested, May, \$2.50; after June 1st, \$2.00.

Three-frame nuclei, with untested queen, May, \$3.50; June, \$3.00; after, \$2.60; with tested queen, add 50 cts. For prices of 2-frame nuclei bees, per lb. and ½ lb. of pure colonies, foundation, and beekeepers' supplies, write for price list. Address 6-11db JNO. NEBEL & SON, High Hill, Mo.

2 STORY Langstroth B-Hives, \$1.00; 1-story Simplicity B-Hives, 45 cts. These hives have frames and covers, all ready for bees, except they are in flat.

6-7d T. A. GUNN, Tullahoma, Tenn.

NEW YORK CITY COMB-FOUNDAT'N FACTORY

Foundation (natural bottom) as good and cheap as the Best. **Bee-Supplies** of all kinds on same plan. Send for price list before you forget it.

6d A. J. KING, 51 Barclay-st., N. Y.

In responding to this advertisement mention GLEANINGS.

LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10-frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, \$7.00; 2 at one time, \$13.00; 4, same, \$24.00. Remember the risk of shipping lies with me. Address

JNO. A. THORNTON,
Lima, Adams Co., Ill.

Express office, Ursa, Ill.

6-11db

C. M. DIXON,

Parrish, Franklin Co., Ill.,

—MANUFACTURER OF—

BEE-HIVES & SUPPLIES

New shop and new machinery. Send for my sixth annual price list, free.

C. M. DIXON.

In responding to this advertisement mention GLEANINGS.

BRADNER'S FACTORY FOR—

BEE - KEEPERS' SUPPLIES.

—WHOLESALE and RETAIL.

Best Goods at Low Prices. Price List free.

6-8-10d J. J. BRADNER, Findlay, Ohio.



I HAVE COME

To say E. Baer will close out the supplies he has on hand, consisting of 100 M. sections, 100 chaff hives, 2000 separators, 4 M. wide frames, far below cost. They are first-class goods, the same as I have sold in the past, and must be sold. Please state what goods you can use, and I will quote you bottom prices. Also a few choice Italian queens, last year's raising, @ 75 cts. each.

EZRA BAER, Dixon, Lee Co., Ill.

6 tfdb

In responding to this advertisement mention GLEANINGS.

Do You Want Knowledge?

Send a postal for price list of International Encyclopedia, 15 vols., royal 8vo, over 13,000 pages, with maps and illustrations. It excels all in comprehensiveness, conciseness, lateness of information, convenience, and cheapness. C. O. D. Liberal discount for freight charges.

A. H. VAN DOREN,
Mons, Bedford Co., Va.

PRIME & GOVE,

BRISTOL, - - VERMONT.

—MANUFACTURERS OF—

Bee - Keepers' Supplies.

White Poplar Dovetailed Sections and Shipping Crates a Specialty. Price List and Samples free.

6-8d

Italian Bees, Queens, and Eggs

From Light Brahma and Wyandotte Poultry. Eggs, two dollars for thirteen.

One untested queen, \$1.00; three for \$2.00.

Price List Free. Address

6-16d H. G. FRAME, North Manchester, Ind.



Vol. XVII.

MARCH 15, 1889.

No. 6.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

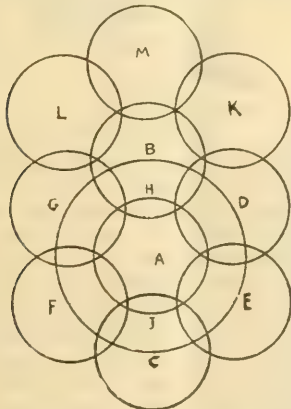
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

OUT-APIARIES. NO. III. — CONTINUED.

DISTANCE APART.

SUPPOSE the home apiary is located at *a*. With *a* as a center, draw a circle *bc*, the points *b* and *c* being distant three miles from *a*. The first series of apiaries will be located somewhere in the curved line *bc*; and if just three miles apart, there will be six of them, *b*, *d*, *e*, *c*, *f*, and *g*. We may represent the range of the home



apiary by the circle *hi*, and the ranges of the other apiaries by circles of the same size. These circles representing the range of each apiary are arbitrarily assumed, and may be too large or too small, the supposition being that the ranges overlap a little at their outer edges, where the interference will not amount to much. This makes, including the home apiary, a series of seven apiaries. If it be desired

to increase the number, or if the pasturage be such that it is desirable to omit some of these and plant others to one side, we can find the location for one at *k* by finding a point three miles distant from each of the points *b* and *d*. *l* is equidistant from *b* and *g*, and *m* equidistant from *k* and *b*, and, for that matter, from *l*. If we complete two circles at these distances, we shall have altogether 19 apiaries, the furthest of which shall be only six miles from home. I think I'll not carry the thing any further than 19. Let Capt. Hetherington make his own plans. All this looks very easy and very regular on paper. In actual practice it will be quite different.

If you have a township map, cut an equilateral triangle out of card-board, each side of which shall measure three miles on your map, and you can easily lay off your ground, for *a*, *b*, and *d* make an equilateral triangle, so do *a*, *d*, and *e*, and so on.

Marengo, Ill.

C. C. MILLER.

Well, old friend, I think you would get pretty much all the honey, if you covered a field as illustrated above, any way. During an excessive yield there might not be bees enough to consume it all; but I think that, with an apiary every three miles, as you have planned it, there would not be very much wasted any season. During poor seasons I am afraid the two apiaries in the middle, *a* and *b*, might have a pretty tough time of it, especially if all the surrounding apiaries turn in and learn the trade of robbing. By the way, do robber-bees ever go three miles? When I was thinking about getting a locality for queen-rearing, where no robbers would interfere, I thought that, if I could go about a mile and a half from any other bees, it would do very well. In our locality I am pretty certain that bees are not

often found three miles from home at any season of the year. But to cover the ground as you have planned it, I believe I should want as much space between them as three miles; therefore, all things considered, I should say you have got it about right.

RAMBLE NO. 12.

SOURING HONEY, ETC.

Flow, softly flow, by lawn and lea;
A rivulet, then a river,
And here by thee will hum the bee
For ever and for ever.

NIG'S feet having been put in proper order, they patted down in staccato time as we bled away again over hill and dale, by quiet forest shades and over babbling brooks, until our course was arrested by what is popularly known as Hall's Mills—a gristmill, sawmill, cider-mill, a potato-hook mill, and, besides all these, a honey-mill, or, in other words, Mr. Hall, not getting filthy lucre fast enough, he thought he saw a great bonanza in the production of honey, and enthusiastically stocked up, with bees, bee-journals, etc. A severe winter loss caused a perceptible decline in enthusiasm. Then a few seasons of short yields caused the abandonment of bee-journals, and a general neglect of both bees and honey; and it is evident that Hall's bees will not hum by this rivulet, "for ever and for ever."

The Rambler found four barrels of honey, rolled out at the rear of the house, under the eaves, with the honey in all more or less sour. This, when extracted, was evidently a good quality of clover honey; but being left in a damp cellar, with bungs out, it had absorbed so much moisture as to make it a damaged article, and it was finally rolled out to make room for cider. If this honey had been stored in a dry room, the quality would not have been injured. The opinion people had of it was fully expressed by Mrs. Hall asking the Rambler if his customers for extracted honey ever wanted any the second time. When told that many customers laid in a supply every fall for winter use, year after year, many preferring it to comb honey, she was incredulous, and said their customers never came for extracted honey the second time; and it was even hard to sell comb honey to those who had used their extracted honey.

As the Rambler went on his way again, the thought uppermost in his mind was the great fact that many people are induced to keep bees who are not and never can be fitted for the business; and the production and sale of honey in many localities is injured more by incompetent local producers than by any other cause. The Rambler does not encourage everybody to keep bees.

LUTE VIRGIL.

The sun was just descending behind the western hills, the lovely autumnal tints blending to charm the eye, while the musical notes of the fall cricket rose and fell in rich cadence from orchard and meadow, and the Rambler would fain lay himself down upon some mossy bank and sweetly dream of the hum of bees and a flowery land. The real hard struggles of life were, however, before me; the farmers were coming in from the toils of the day, with sweat-bedewed faces, tattered clothes, and calloused hands that silently spoke of the hard struggle with nature. A few of the "cattle from a

thousand hills" were being herded for the night, and all signs admonished the Rambler to hasten to a haven for the night, under the roof of Mr. Lute Virgil, a noted bee-keeper of Whitehall. Bro. V. lives upon one of the world's byways. We go down through a dark ravine. The stalwart trees on either side, like huge sentinels, seem to guard the rocky pass. When safely down we come out on a broad alluvial bottom, and this is called an interval on Wood Creek. A sharp turn to the right soon brings us to a cosy cottage, under a perpendicular rocky cliff of over sixty feet in height. As it is east of the house, old Sol puts in a late appearance at the Virgil homestead. I found Bro. V. attending to the chores, after the completion of which we adjourned to the house, where I found Mrs. V. and two bright little girls to enliven the home and to make it worth loving and living for. Nearly all of the bee-journals are found upon his table, and we found his preferences strong in particular directions. A worthy man named Doolittle scemed, according to Bro. V.'s dictionary, to be the only writer of much consequence in the apicultural ranks. To sum up the main points of our conversation during the evening, I find it ran about as follows:

"Well, Bro. Virgil, I did not see your hives as I entered your grounds this evening; you must paint them a dark color."



RAMBLER'S DREAM—FOLLOWING IN THE TRACKS OF DOOLITTLE.

"Oh, ho! friend R., I follow nature; take Doolittle's advice, and don't paint them at all. Bees winter better in unpainted hives. I don't believe in any fancy fixings or poetry about hives and yards, etc. I run my bees at the least possible expense. I am after the hard dollars."

"Then I suppose you use the Doolittle hive."

"Oh, no! I use the Langstroth hive; but if I had known as much about Doolittle's plans as I do now, I would have adopted his hive. His big yields of honey every year show that the hive enables him to get there every time."

"Then I suppose you don't think much of the new-fangled Heddon hive."

"Well, no! You see, Doolittle don't say much about it."

"Well, Bro. V., do you practice artificial swarming?"

"No, sir. You don't catch me so far from nature's plan as that. Doolittle and I agree on swarming, exactly."

"I see you have Alley's Handy-book; how do you

succeed in raising queens according to his particular method?"

"Why, now, friend R., you make me tired. Just think of the fixin's and palaverings with shaving combs, hot beeswax, matches, and tin feeders! Why, Doolittle's natural plan just fits into my hat, and we get there with big queens and tons of honey every time."

"Do you raise comb or extracted honey?"

"I raise gilt-edged comb honey. I don't expect to equal Doolittle just yet, but I mean to get there."

Finding I could not get Bro. V.'s mind from the great bee-man, we talked crops and farming generally, but Doolittle's name would get mixed in with corn, potatoes, and the care of stock.

At the table, when he passed the articles to me I expected him to say, "Will you take some more Doolittle?" like the girl passing potatoes to a man with an enormous nose. The nose fully absorbed her mind, and, said she, "Sir, will you have some more nose?"

Dreams troubled the Rambler again, and it seemed as though we were all following Doolittle; and in this direction I am free to confess are often found the steps of the

RAMBLER.

THAT RACE BETWEEN BEES AND PIGEONS.

THE MATTER EXPLAINED.

MR. EDITOR:—On page 935, for 1888, you copy an item from the *Bee-Keepers' Record* about a flying-match between pigeons and bees. You reserve prudently your opinion on the story, for want of facts. I am able to give you information. The German *Bienenzeitung* first reported the match, whence it has been translated in so bungling a manner that it became indeed a very ridiculous yarn. A correct translation will change it into a serious and interesting experiment. It reads as follows:

From Hamm it is reported that one Mr. Ch. R., a fancier of carrier-pigeons, and a bee-keeper, proposed the following match: The distance was to be not quite one hour (about $2\frac{1}{2}$ miles), namely, from Rhynern to Hamm. The day selected was fine, when bees would come home sooner than carrier-pigeons. The bet was taken . . . and bravely won by the bee-man. Twelve carrier-pigeons and twelve bees, sprinkled with flour, 4 of which were drones, were taken to Rhynern, and there simultaneously set free. One white drone arrived 4 seconds in advance of the first pigeon. The second pigeon arrived simultaneously with the other three drones, and together with the rest of the pigeons arrived also the workers. The bee-keeper had won the match."

You will, by comparing the above with the rendering in the *Record*, easily understand that the translation has been made by a man equally igno-

rant of the German language and of apiculture (which he confounded with agriculture). He omitted to say that the bees were sprinkled with flour, because he did not know what every bee-keeper knows, that it was essential, as otherwise the bees could not be identified. Not quite one hour is about $2\frac{1}{2}$ miles (English), not 5 miles. The German term *langten an*, which means *arrived*, is, by the ignorant fellow, translated "preceded by a length." Any schoolboy would not have made such nonsense. The fact that pigeons are beaten by bees is not new.

Sigel, Ill., Feb. 15, 1889.

DR. WM. LEERS.

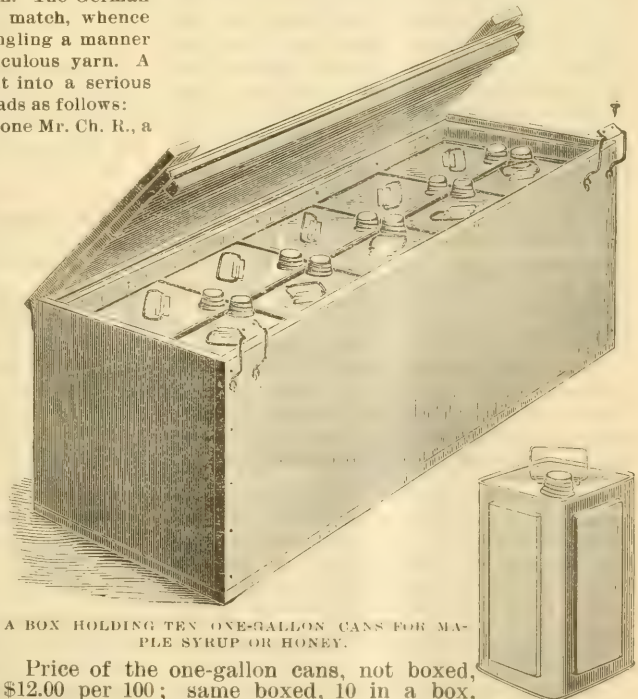
SOMETHING NEW FOR HONEY AND MAPLE SYRUP.

RECENT IMPROVEMENTS IN THE WAY OF CANS FOR MAPLE-SYRUP MAKERS AND SHIPPERS.

MOST maple-sugar makers have experienced the awkwardness of trying to box up the ordinary round cans, whenever they are so lucky as to have an order for syrup from a distance. Well, this season, for the first time, we have got a gallon can that fits into an ordinary square box as nicely as a duck's foot fits in the mud. If you don't believe it, look at the "picter."

Now, if you should be so lucky as to have an order for ten or a dozen cans, you can just set them all in one box made purposely for shipping syrup, as in cut below.

Of course, all I have said in regard to the adaptability of these cans for maple syrup will apply with equal force to putting up and shipping honey. In fact, we keep them in stock all the year round.



A BOX HOLDING TEN ONE-GALLON CANS FOR MAPLE SYRUP OR HONEY.

Price of the one-gallon cans, not boxed, \$12.00 per 100; same boxed, 10 in a box, \$14.00 per 100; single box of 10 cans, \$1.60. Single can, without any boxing, 15 cts.

BEE-FOOD IN WINTER.

THE BEST OF THEORIES MUST VAMOOSE BEFORE
CONTRA FACTS.

WHEN I answered Question 97, in GLEANINGS, I did so from my experience in bee culture for the past twenty years. I, also, have some theories and a slight knowledge of chemistry as connected with apiculture; but the latter are not great enough to cause me to rely upon them when my practice with large apiaries teaches me differently; but it happens that my theories regarding transpiration, ventilation, and the component parts of winter food, precisely agree with my experience, nearly all of which ground you have been over in your experience, as indicated in your foot-notes to Bro. Corneil's article on page 172. I love theory; still I am aware that there is both true and false theory. I strongly incline toward those minds which take to theorizing, and who study and love science; and I value Mr. Corneil's scientific articles, but I know positively that, in the depths of his research, his lantern has gone out, and he thinks he feels something that doesn't exist. I know that bees can and *do* and *did* continue to digest syrup without the least particle of pollen in the hive. Practically I know nothing of the component parts of sugar, only so far as I believe the statements of chemists, and especially of our friend Professor Cook. I believe that I never said that my bees starved on sugar syrup. I said that they froze to death during the longest and severest cold spell I ever witnessed. Bees kept upon natural stores did the same; but I did bring through 73 colonies upon sugar syrup, and in perfect condition. There were very few dead bees, and not the least sign of the old malady we have called bee-diarrhea or bee-dysentery, so that, when they had their first flight on the 17th of April, warm and pleasant, and the outside bees were gathering pollen, not a bee of the 73 colonies voided any thing, not even water. Their bodies were just as slim as when placed in winter quarters. I call that perfect wintering, as they were confined in the cellar 151 days with absolutely no food in the hive except strictly pure granulated-sugar syrup acidized with tartaric acid. I honor Mr. Corneil for his careful research, but I know that he will be compelled to search again.

DOVETAILED HIVES.

When I see something in GLEANINGS relative to mechanical construction of hives I am at once interested; for, more than all other branches of apiculture, have I made this a study, and with it have I experimented. While William Stolley, of Grand Island, Neb., was my foreman I devised this same honey-board with the full bee-space on either side, and he assisted me in making it; or perhaps I am mistaken, and it was W. H. Shirley, of Mill Grove, Allegan County, Mich., who helped me make some of them at our mill, one or two samples of which still hang in my shop. The brood-frames to use in that case were to come flush with the top of the hive, of course, the bee-space being in the honey-board. It has never gone into general use with us, and I think it never would, even were we to continue using the old Langstroth hive and suspended frame. Now, the dovetailing arrangement, you may well imagine, was talked over much by us, believing as we did that it would be the best way with which to make our shallow cases, which with the

new hive you know I use in the brood-chambers the same as in the surplus cases, and we came near getting machinery to make them in that way, but did not do so. I believe it is a move in the right direction; and with your shop-room, power, fine machinery, and large trade, I believe it is practical and best to adopt dovetailing for hives, supers, etc.

No, I do not favor discarding the bee-space at the top of the L. hive, nor do I believe the section-holders illustrated on page 189 will come into general use. I will not occupy your valuable space at present by telling why; but you make one of my points when you say that honey is cheap, and we must have simple and cheap implements. Where no separators are to be used, I believe nothing is better than my old-style case, but I would advise making it with dovetailed corners, and grooves in the sides for divisions. Certainly you are privileged to not only use but manufacture for sale my break-joint and bee-space honey-board, when used either with or without queen-excluding metal, or, for that matter, any of the parts connected with my modification of the Langstroth hive; and, more than that, I wish to thank you for your manly method of giving credit to whom you believe it belongs. Of course, you have not forgotten how almost alone I pleaded for the honey-board; but a writer in the *Canadian Honey-Producer* seems to have forgotten that almost alone I also pleaded for the tiering-up system long before he ever uttered a word about it, as the records show, and no doubt before he had any conception of its usefulness. It is tedious, to say the least, to plead for certain manufactures and systems of manipulations for years, opposed and almost alone, and, after succeeding in popularizing it, to have some one come up, like a Jack out of a box, and lay claim to the results of your labors; but we must learn to bear and forbear.

Dowagiac, Mich., Mar. 5, 1889. JAMES HEDDON.

You will see, by referring to department of "Recent Developments," elsewhere, that we have decided to put the bee-space *above* the frames instead of below, and, of course, use a one-bee-space honey-board.

ANOTHER HEXAGONAL APIARY.

SESPE APIARY, FILLMORE, CAL.

I DID not think to tell you about my hexagonal apiary when you were here, so I send you a plan of it now. The little round spots are stones about as large as a man's head, 8 in a pile. They answer a double purpose. They are put on the hives in the winter to keep the covers from blowing off, and when a hive has a virgin queen one of them is put near the entrance to mark the hive until she is laying. The hives all face those stone piles, and the honey-carts are run up through the other hexagons between the backs of the hives. Those other marks between the stones are nucleus hives. The advantages of this arrangement of the hives are, that the bees do not work to the out ends of the rows, and become weak in the center as they do when the rows are straight, and queens are seldom lost on their wedding-trip. The only disadvantage I know of is the difficulty in getting the honey-cart to stand close and at right angles to the inner hives when taking out honey. The land slopes south to the honey-house; hives face east and west,

and brood is always placed near the south side of hives in the spring.

J. F. MCINTYRE.

Fillmore, Cal., Jan. 21, 1889.

Friend M., we are very greatly obliged to you. I was very much interested, in fact, in your hexagonal apiary; but those great mountains before and behind your pretty little ranch kept me staring so much of the time with open mouth that I am afraid I did not look at the apiary as much as I might have done otherwise. Perhaps not all the readers may be as fortunate as you are in having access to stones of any particular size you may happen to need. I want to explain to the friends, that right in front of his house a big block of granite about the size of a meeting-house stands as tranquilly and unconcerned as if it had a perfect right there; but friend M. told me,

cartload of honey goes down through those open lanes without much labor. Between the honey-house and the road is a great iron tank. These iron tanks are to be seen near every honey-house in California. An iron pipe runs from the extractor into the tank; then a gate at the bottom of the tank lets the honey into the square cans, standing on a platform just right to load into a wagon. There is no need of building any roof over the tank, for it never rains in California during the honey-flow. You will find a photograph of some of the mountains back of Sespe Apiary, in our A B C book. Right back of the apiary, on the western slope, is an irrigating canal that pleased me greatly. It is a sort of wooden flume; and the sight of the pure babbling brook that glides down over the sandy and gravelly bottom, as if it

were in a big hurry to get somewhere, was to me a fascination. These streams of watermean business — market-gardening, fruit-raising, etc. The picture of R. Wilkin's apiary, in the A B C book, does not begin to do justice to the spot. The trees seen scattered about are orange and fig trees, and the oranges and figs are good too.

Do you want to know what our young friend McIntyre is doing with R. Wilkin's apiary? Why, he married friend Wilkin's youngest daughter—that is how it comes about. Oh, yes! I want to tell you one thing more about young McIntyre: He is a young Canadian, like "our John;" and I tell you, friends, when you find better boys to work than these young "Canucks" you will have to fly around lively. When friend Wilkin was putting up his shipload of honey to take to Europe there was a great demand for tinner, to solder up cans. The best tinner in San Buenaventura succeeded in soldering only about 1100 cans a day; but friend McIntyre, after a couple of weeks' practice, solder-

ed up 1400.

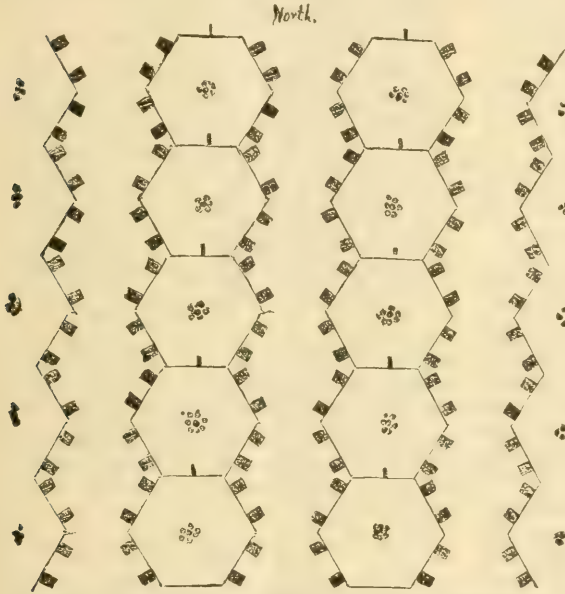
This is the same apiary that E. Gallup had charge of some years ago. Friend G. is now located in Santa Ana, near Los Angeles, but he was not keeping bees when I called upon him.

DO LIZARDS EAT BEES?

PROF. COOK TELLS US SOMETHING ABOUT THE LIZARD FAMILY IN GENERAL.

MR. J. M. WOODHOUSE, Durango, Dubuque Co., Iowa, writes: "There is a small quadruped, about six inches long, with striped body and blue tail. It lurks about my hives, burrowing last summer under an empty hive in the bee-yard. What is it? Does it eat bees or honey, and is it poisonous?"

This is doubtless *Scincus fuscatus*, Holbr.—the blue-tailed striped lizard. This lizard is about eight inches long when full grown. Its head is bluish black, with six light-yellow lines, and its



PLAN OF SESPE APIARY, BELONGING TO J. F. MCINTYRE, FILLMORE, CAL.

when I looked at it in a questioning way, that it came down the canyon one night in a flood, and stopped right there. In my innocence I spoke about following the path up to the summit of a mountain right across the stream, while waiting for the buggy. They said I would not have time, and asked me if I noticed some animals away up on the summit of the mountain. I told him I saw some little black pigs, if that was what he meant; but after I looked carefully, the little black pigs seemed to have horns on their heads. When told they were cows, the mountain seemed to spring up a quarter of a mile all at once, and I concluded I would not go up where those little cows were, especially as we hadn't more than an hour to spare.

Do you want to know something more about the apiary? Well, Sespe Apiary, as they call it, is one of the prettiest I ever saw. The honey-house is at the foot of the incline, just below the bee-hives, so that a

body the same color, with five straw-colored lines. The tail is deep blue. The throat and abdomen are white. It belongs to the "skink" family of lizards.

Lizards—from their quick lively movements often called swifts—do live on insects. I have never known or heard of their eating bees; but the toads do, and why may not the lizards as well, as they too are insectivorous? I do not think, however, that they will do any very considerable harm. None of the lizards are in the least poisonous, or harmful to handle. Even the horned toads of Colorado, Kansas, and Texas—these are also lizards and not toads at all—which, from their horns, or spines, look quite formidable, are quite safe to handle.

Very likely the lizard may visit the cellar. They have been found in cellars often.

Mr. Woodhouse also asks if there is any positive evidence that bees mean to kill a queen when they ball her. I think there is the best of evidence. I have seen several queens balled, and soon afterward found them dead in front of the hive. That the bees sometimes relent, and do not execute their intentions, is equally obvious, for I have known more than one case where a balled queen left alone was permitted to escape, and did excellent work as the mother of the hive for months afterward. I think the bees intend execution when they surround a queen. Why they change their minds in some cases, I can not say.

Agricultural College, Mich.

A. J. COOK.

I saw a great many beautiful lizards in California. They would glide along the rocks on which we were sitting, and peek at us curiously out of the cracks and crevices. I think it quite likely they might learn to eat bees to some extent.—In regard to bees killing a queen when they ball her, the most of us have had ample proof, by sad experience, that they do usually kill them unless driven away by smoke, or made to let them alone by recaging or something of the sort.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

SETTING OUT TREES: HOW TO DO IT BY MEANS OF HEXAGONS.

ON page 980 of GLEANINGS, Dec. 15, you ask if any of your readers can tell you how the orange groves are planted so as to line at so many different angles. Yes, I think I can.

The properties of the hexagon will explain it. You go to the honey-bee again for wisdom. Take a

hexagonal piece of card and lay it on a piece of card-board, at the upper left-hand corner, to correspond with the dots of pencil. Move it to the right one-half of its diameter, and mark its angles and center. Keep on at this across the card, then place the hexagon just below the first diagrams made, and go across the same way. Continue this process *ad libitum*; then you can draw lines to represent the rows, as I have done, showing six angles at which they will row, or "line."

More trees can be set at a given distance apart on the same land, this way than in any other I know of. I have been in the fruit-business quite extensively, and have given the subject much thought. The properties of the hexagon are very useful in the solution of problems in geometry and trigonometry, as no doubt Ernest can testify. If any one gives a plan that is ahead of this, let us have it in GLEANINGS. I hope you will keep on traveling, and writing notes. I think your Notes and "Our Homes" the most valuable part of the book.

Brookston, Tex.

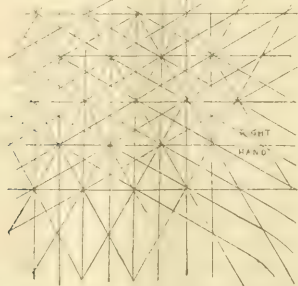
J. G. FITZGERALD.

We are all very well aware that the figure you give is the way trees should be set; but I can imagine that the greater part of us will have great difficulty in setting them as accurately as you have drawn your lines. Perhaps by the aid of the appliances given in our former numbers we may be able to do it. The orange-groves—in fact, orchards of almost all kinds in California—are set out in just this way. Each tree is the center of six other trees, all at equal distances from it and from each other. Some may say that it is too much fuss and bother; but, my friends, it pays to spend some time in fuss and bother when you realize that an orchard may stand not only during *your* life, but for the benefit of your children also. In cultivating, our California friends just pull their harrows through between the trees, in three different directions; and after they get done, the ground looked "handsome," I tell you.

THE IGNOTUM TOMATO. REPORT FROM PROF. BAILEY.

At least two or three thousand of our readers will be interested in the following, which we take from the *American Garden* of March 1:

This variety has been mentioned of late in several journals, and it therefore seems proper to say something concerning its origin and merits. During three years the Michigan Agricultural College has undertaken extensive tests with tomatoes, and for two years all varieties that could be secured from all sources were grown. In the spring of 1887 a complete set of German varieties was obtained from Robert Neumann, of Erfurt. Among them was the Eiförmige Dauer. This proved to be a small and angular variety of no promise; but one plant bore fruits of remarkable beauty, solidity, size, and uniformity. Among about 170 sorts shown that year at the State fair at Jackson this tomato stood up far the best of any. I supposed this plant to be an accidental mixture in the seed of Eiförmige Dauer; but being unable to determine it I called it Ignotum, or "unknown." In the spring of 1888 a few seeds were sent to several friends for testing, and some 500 plants were set in our own garden. Everywhere the variety appears to have exceeded expectations. I left the Michigan College in August, and therefore did not see the full fruitage of the plants; but my former foreman, Charles S. Crandall, a thoroughly competent observer, informs me that it maintained its excellence, but that a few plants reverted to the Eiförmige Dauer, a fact which indicates that the Ignotum is a sport



FITZGERALD'S METHOD OF MARKING THE SITE OF TREES.

from that variety, instead of having been a simple admixture in the seeds. Others, including E. S. Goff, at the New York Experiment Station, had similar results. It is to be hoped, therefore, that seedsmen will not be tempted to secure the variety until two or three years further selection give it a thoroughly stable character.

My successor, Professor Taft, makes the following observation concerning my last plantation of Ignotum: "From our own experience, and the reports of others who have tried it, I am inclined to think that it deserves a front rank among the tomatoes. With us, as compared with the Mikado, it is larger, smoother, more solid, less subject to rot, more productive, and is more desirable, both as an early and as a late variety. We had several hundred plants growing on a dry sandy knoll; and although it was a dry year with us, the plants gave a very heavy crop, and continued ripening until the frost destroyed the plants about the first of October."

Mr. A. I. Root, to whom a few seeds were sent, makes the following statement in his GLEANINGS IN BEE CULTURE: "The first ripe tomatoes I picked in the open ground were from a dozen vines of the Ignotum. It is remarkably free from rot, ripens all over alike, and each vine bears a great quantity of tomatoes. I do not know that we have any tomato in any respect superior, except the Mikado, and the Mikado excels only in size. Perhaps this is owing, however, to the fact that our Mikados of the past season were all from the seed taken from a tomato that weighed a pound and a half. The result of this selection of the seed gave us extra large Mikados, but it did not mend the awkward shape of a great part of the tomatoes very much. To sum it all up, then, the Ignotum tomato, in my estimation, is ahead of any thing heretofore introduced."

Four tomatoes have given us great satisfaction in outdoor culture, in the order named: Ignotum, Puritan (from Rawson), Potato Leaf (from Livingston), and Mikado. Mikado is too irregular, and is not uniform in size; but its great size and productiveness are merits which can not be overlooked.

Ithaca, N. Y., Feb. 4.

L. H. BAILEY.

You will notice from the above, that Prof. Taft has found it even *larger* than the Mikado. Professor Taft says that the plants were on a dry sandy knoll. Now, friends, I am beginning to think that a dry sandy knoll, or a dry gravelly knoll, is a much better place for tomatoes than the ordinary rich grounds of our market gardens. Last season we planted the bulk of our tomatoes right over the best and richest ground; and while they made an enormous amount of foliage, the tomatoes were later, and the greater part of them did not get ripe at all. If you want fruit very early, put it on ground so poor that they will begin to produce fruit when less than a foot high. If our friends who have received seeds of the Ignotum will carefully save their seed from the best tomatoes, there will be a good demand for them another season; and it is altogether likely that no seedsmen will ever be able to sell a very few seeds at a big price, as has been done with many of our novelties when they first came out.

MORE ABOUT BUSH LIMA BEANS.

In response to our order mentioned in our last issue, Thorburn & Co. did send us a packet of lima beans; and 25 of Thorburn's Bush lima beans weigh as much as 75 of Peter Henderson's Bush lima beans; moreover, the 25 beans, when cooked, were a lima bean, and no mistake, and fully as rich and delicious as the King of the Garden lima. Thorburn said that their stock was so limited they could not furnish any except 25-cent packets. We find printed on the envelope the following:

KUMERLE'S DWARF LIMA BEANS.

A novelty of great merit. Originated at Newark, New Jersey. Grows two feet high, branching out in all directions; is very productive, and especially desirable in small gardens, as it does not require any poles. Plant in rows two feet apart and one foot in the rows; one plant only should be allowed to grow in a hill. Per packet of twenty-five seeds, 25 cents.

We have asked Thorburn how many packets he will let us have at 25 cents each. If anybody else on the face of the earth has any of these Kumerle's Dwarf lima beans, we should like to have them stand up and tell us what they know — how many they have, and what they will take for them. It might be worth while to pay a big price for what stock is to be had, even at one cent per bean; for whoever raises a crop of them next season will probably get a good profit on his investment.

QUESTION 110 RECONSIDERED.

SHALL WE SHIP OUR HONEY TO ONE COMMISSION HOUSE, OR DIVIDE IT UP AMONG SEVERAL?

THE COMMISSION MAN A BENEFIT TO THE PURSUIT.

I HAVE had no experience in marketing honey, as this season will be my first in bee culture; but as a gardener I have had twelve or thirteen years of experience. I consider the marketing of honey the same, with this difference: Honey is not a perishable article, and does not have to be sold in one day, or even two or three, as do small fruits and garden truck. I do not think, but know by experience, that taking goods to two or more commission merchants (according to the amount) is a benefit to the shipper, and I believe it the same with honey. Commission merchants have chosen this occupation to accumulate wealth and support, and it would be folly for them to cut down the prices as some of the respondents tried to argue. Honey is something which does not require immediate sale. The larger the price, the more percentage they receive. One point I wish to mention is, that nearly if not all commission merchants have more or less enemies. I know about thirty commission merchants in Buffalo, N. Y., and many more I am not acquainted with. I believe there is not one but that has some enemies, some more than others. If we consign to two or more we have that much benefit. And another great point I look at in the honey line as well as gardening is the amount; for instance, 1000 or 1500 lbs. of honey in one commission house. It would seem a large amount in the eyes of some, but divide it among three or more and it would not be noticed; the same with garden production. If three or four teams came into market with very large loads, the people would exclaim, "Oh my! the market will be away down to-day." Take the same amount in one-horse loads, and the tune will be changed to "A small market to-day. Prices will be way up." Many here have discovered that it is better to go to market with two one-horse loads rather than make a very large two-horse load. Therefore I believe honey should be distributed among the commission houses. As far as my experience goes, I find the commission merchants try to keep a uniform price as far as possible. If every shipper of honey would be careful and sort his honey into two, three, or even more grades, as the case may be, and if, too,

he would paste small labels on each package to indicate first, second, and third quality, etc., and then divide the whole lot of several grades among the commission merchants, he would avoid some of the evils of competition hinted at by some of the respondents to the Question-Box. If Jones or Smith stops at A's commission store, and inquires the price of honey, and then goes to B's shop, Jones or Smith will find the same quality, and then there will be no chance for Jones or Smith to go back to A's store and say they can obtain honey at B's shop at a less figure. The commission merchants are generally up in the morning, and wide awake; they know the quality of goods others are handling. So I think Mr. E. E. Hasty is correct in using for example, the proverb that says, "Don't put all your eggs in one basket."

HORACE F. GRESSMAN.

Water Valley, N. Y., March 4, 1889.

I am exceedingly obliged to you for putting in a good word in favor of commission merchants. There has been altogether too much fault found through the bee-journals and agricultural papers with this class of neighbors of ours. They do have enemies, I know; and many times it is because they are so far away that the one who intrusts them with his produce can not well get acquainted with them as he does with near neighbors. I do not mean that there are not some bad men among them; but if you consult your nearest bank, I think they can tell you almost every time which ones are honest and trustworthy. Sending produce to somebody whom you do not know is like jumping in the dark. I do not quite like your idea of two one-horse loads in place of one two-horse load. The former would take an extra man, and I think your people had better be educated instead of being encouraged in such notions. I believe it is true, that commission men, at least the successful ones, are up in the morning, and wide awake; and if bee-men are not also, they don't deserve success.

SOMETHING ABOUT THE SIZE OF THE BROOD-CHAMBER.

C. J. H. GRAVENHORST'S VIEWS.

I NEVER am more delighted by reading the American bee-papers than at that moment when the author holds with me in an opinion got by carefully conducted experiments. I think there must be some truth in it, if two men, living in different parts of the globe, come to one and the same conclusion, and agree, therefore, with one another. At least I felt so by reading the excellent article in GLEANINGS, No. 1, 1889, by Mr. Doolittle, under the head, "Something about Bee-hives." He says: "By many carefully conducted experiments I found that queens, as a rule, would not occupy more than 800 square inches of comb with brood for any length of time." In order to insure success, and not to get any pollen in the sections, Doolittle allows 200 square inches of comb above the 800 the queen occupied, so that he has 1000 square inches of comb space, or about 1500 cubic inches, as the right size for the brood-chamber, regardless of what style of frame is used. "Of course," says Mr. Doolittle, "the frames one has in use will not always give just the number of square

inches inside of them which is required, but we can use the number which comes nearest to it." That is to say, it matters not whether we allow a few square inches of comb more or less than 1000 for the brood-chamber, but this number is sufficient, and more are not needed. Of course, Mr. Doolittle knows as well as I and many other experienced bee-keepers, that, as we have sometimes dwarfs and giants among men and animals, so we have also small and big colonies in our apiaries, according to the fertility of the queens, aside from other circumstances. Now, I think we are on the right way if we have regard to this, and construct the brood-chambers of our hives neither for dwarfs nor giants, but for standard colonies; that is to say, such colonies as are in the best working order.

As far as I know from what I have read in the American bee-papers, the climate and honey resources at the Home of the Honey-bees in Medina, Ohio, and at the home of Mr. Doolittle, are similar if not equal, as in most sections of Germany, so that our standard colonies need only a brood-chamber of 1000 square inches to remain in full working order. May be that the standard working condition of colonies is not the same in all countries, according to the climate and the honey resources, and that in some sections it may be better to construct the brood-chamber much larger than 1000 square inches of comb space; but that must not lead us the wrong way in our own country.

By using 1000 square inches of comb, Doolittle has in the brood-chamber 50,000 cells for brood-rearing, if one square inch on each side of the comb has 25 cells. I have in the brood-chambers of my hives 51,000 cells in 9 frames. Now, let us see if 50,000 cells are enough for brood-rearing in order to have a good colony in full strength. No one has made more carefully conducted experiments to find out the number of bees in a swarm than the Baron von Berlepsch, so far as I know. He tells us in his book that a strong swarm of bees in a well-conducted apiary contains 20,000 to 22,000 workers. Such a swarm, he says, is in the best working order, if it is doubled so that it has 40,000 to 44,000 bees. If every bee lives six weeks at the time of their utmost working, then the bees will be doubled within six weeks. In order to breed 44,000 bees there must be 44,000 cells, besides the cells for honey-storing. If the queen is very prolific, and deposits only 2200 eggs daily, there would be, within 20 days, 44,000 eggs in the combs; there are in six weeks, more than 88,000 eggs. The hive would be double filled, even if all swarm bees had lived only six weeks. In order to have a colony of 40,000 or 44,000 bees in full strength it is only necessary that the queen deposit 1100 eggs daily during 40 or 44 days. Therefore 1100 square inches of worker comb is sufficient for the brood-chamber, where the climate and honey resources are similar, as at the home of Mr. Doolittle or in Germany.

C. J. H. GRAVENHORST.

Wilsnack, Germany.

It rejoices our hearts to get a word now and then from good friends like yourself, away off across the water; and we feel proud to have you indorse friend Doolittle. If your conclusions are correct, bee-keepers should not spend too much time in hunting up better locations. They should bear in mind that success is not achieved in Medina, in Borodino, nor even away over in Germany, without hard, earnest work.

CHILDREN OF THE KING.

SOMETHING ABOUT BEES AND OTHER THINGS,
FROM SINGAPORE.

BROTHER ROOT:—I have just been reading GLEANINGS; and when I got over to what you had written on Isaiah 55:9 I felt like the man at a family reunion, who met for the first time a distant relative whom he had never seen. As he extended his hand and looked him in the eye he said, "I have never seen you, but I should know you were a Smith, even if I should meet you in London. Here's my hand; we're of one blood." So I was sensible of a thrill of friendly feeling as I read how the hard places in our Father's word used to trouble you, and how our elder Brother made them plain to you in answer to earnest, honest prayer; and I said, "This is one of the family, and I can see the family likeness. So, here's my hand; and though I never saw you, and probably never shall, I want to send you a word of encouragement, and ask you to pray for the Master's work in this distant heathen city.

If you haven't looked to see whose name is attached to this letter by this time, then I miss my guess; but if you haven't, you must begin to ask, "Who is the fellow, and why does he not let us know who he is?" Well, I am a missionary from Ohio, and GLEANINGS is sent to me by friend Dr. A. B. Mason. He knows me and Mrs. M. and both our families; but suffice it to say to GLEANINGS, I am a Buckeye, at work for my King, like a bee for its queen, among the Chinese and Malays of the islands of Singapore.

I have often read your plain, simple expositions or explanations of texts, and have been helped and encouraged; not only by that, but also by the Scriptural way in which you seem to combine business and religion. Let your light shine; you probably could not glorify God more or half so much in any other sphere.

I was a year in Burma, but I have never seen a hive of bees in either that land or this, but heard that some were known of by some one else, and I am inclined to think it a matter of doubt whether any one has an apiary in this part of the world. But there are bees, for a month or two ago I saw a large swarm settle on a big teak-wood tree near our mission house. The Chinese schoolboys (boarders) tried to knock some of the comb down, which they said the bees would make very quickly, but they concluded to let them alone, and the bees went away after a few weeks, I think.

We have perpetual summer here, as we are less than a hundred miles from the equator. But we are so exposed to the sea-breezes that it seldom is over 90° or less than 70°. Foliage is superabundant, but flowers not numerous, yet I have no doubt honey is found to some extent. This I know, we have here some of the finest fruits that grow in the whole world—chiefly sub-acid or sweet—and there is no season, no month, even, when we can not get fruit of some kind in the fruit market or stalls. Oranges, pine-apples, and bananas, abound almost the whole year round. There is now growing, in our compound, coconuts, pine-apples, pomellos, nutmegs, cocoa, mangostines, jack-fruit, rambutans, and durians. The four last are peculiar to this region. The last is called by some writer the "emperor of sub-acids."

It is hard to get acquainted with, but a fast friend.

This, like the jack-fruit, smells from afar. It required a year and numerous attempts to kindle a fondness for either of them, but I am strongly attached to them now.

I left New York in Nov., 1886, and landed in Bombay, India, Jan., 1887. I had a good look at the great city of India, and crossed over the continent to Madras, on the eastern coast. Jan. 28 I plucked the choicest tea-roses from the abounding bushes in the station yard, at the top of the western Ghauts.

I am teaching by day in the Anglo-Chinese school (we have a large school of 250 day pupils, and a dozen boarders), and we hold regular gospel meetings among the artillerymen in Fort Canning, and another among the poor Eurasians in a narrow street called Saliga Road.

Last week several from both these quarters identified themselves with the church of Christ. Our boarders (Chinese boys) are most of them from wealthy Chinese homes. They eat at the same table, and of the same food, that the principal and teachers do. We carefully train them in books, and at the same time teach them about God's word and its contents. Nothing so interests them as Bible stories. The older ones understand the gospel message, pray, and some have said in actions and words, "I want to be a Christian." I saw one of our brightest, most promising boys on his knees before going to sleep, praying to the God of the Bible. We find great joy in doing such work for our Master.

But how often and how keenly do we feel our incompetence alone to undertake the great task of bringing these boys and these people to a knowledge of Jesus Christ as the every-day Savior of men from sin as well as wrath!

Pray for me and the other missionaries, that God may use us in accomplishing the great work, sure to be accomplished in time, of making the kingdoms of this world the kingdoms of God and of his Christ.

R. W. MUNSON.

Singapore, Malaysia, Asia, on Straits of Malacca, Dec. 7, 1888.

Here is my hand, dear brother, with thanks for your exceedingly kind words, especially as I had felt that that chapter of mine was one of my poorest—at least I didn't succeed in telling it so as to give one an idea of the actual experience I passed through in finding great truths where in the first place I had seen only great stumbling-blocks. I wish to emphasize one thought of yours in regard to getting accustomed to new products of the soil. In California the people were, almost without exception, exceedingly fond of pickled olives—that is, with the exception of the "tender feet" as they call them, meaning the new comers. They all assured me that everybody who tasted olives, for the first time, declared they were any thing but pleasant; and while the rest devoured them greedily I was shut out. But I kept tasting them, however, and now I not only find them delicious but nourishing; and if one who goes into a new country gives way to his likes and dislikes, especially prejudice, he will lose a great fund of enjoyment afforded by getting acquainted with such of God's gifts as we have not been accustomed to.—It stirs my heart to hear you speak of the Chinese boys,

and I think yet of that class I had in charge for a brief half-hour in San Buenaventura. I know I am not mistaken when I say that these boys were well started on the up-grade from earth to heaven. With encouragement and looking-after, I am as sure of the outcome as I should be of a crop of corn with plenty of rain and sunshine, and all that can be asked for in the way of soil and fertilizers. May God bless and strengthen you. Such letters as yours will encourage me to make a more hopeful and brighter and better journal than I could otherwise.

HOW TO GET BEES OUT OF CRATES OF HONEY-BOXES, ETC.

ALSO A SUGGESTION IN REGARD TO KEEPING THE MOTH-WORM FROM EMPTY COMBS.

MY bees do not seem to like those queen-excluding honey-boards (?). I hived three swarms in a hive with one in, before I could get one to stay, and then only a half stayed. I let them alone, thinking they had no queen, and would soon die; but when I looked at them a week later they were carrying in pollen. The whole lower part of the hive was filled with empty combs; on top of them I placed the queen-excluder, then another Simplicity body half filled with new white drone comb; on this a crate with partly filled sections from last year. When I went to prepare them for winter I found the crate empty—the top Simplicity body half filled with what looked like nice white honey—and bees—the lower body containing neither bees nor honey. I thought I could not bother to keep them over winter, but would take the white honey from them and let the bees go out at the screen-door along with the other bees. So I had them carried in with the rest, and set on the floor among them. Next day I looked to see if any of the crates were empty of bees, so that they might be carried upstairs, and I found that all the crates and hive-bodies were entirely empty—not a bee in them, and not many bees were clustered on the screen, as there used to be on such occasions, with the exception of that hive-body that had that white-looking honey in. I lifted up the frames and found that, after about three inches of drone comb filled with honey, there was worker comb with a few cells of unhatched brood. All the bees in those twenty or more different boxes had gone in where there was a queen. Now, will bees do this every time? If they will, here is a very easy way to get bees out of sections: Just bring a nucleus with a queen, and put it among the crates, and let all the bees go to her. Perhaps some one has told this before. I do not remember seeing it, and it is *perfectly new* to me.

I had the men carry that hive back to its old stand, and fixed it up for winter, like the rest. Last spring, when I found that so many of my bees had died, I knew that I ought to take care of those combs in some way. But I was too sick and weak, and I made up my mind that the moths would have to eat them. Every week I thought I would get Irving to help me smoke them, or get the beeswax out, or something; but there never was an hour when I could have him, nor a day when I could do it alone. This went on till three weeks before swarming time. Then I went one day to look at them, expecting to be made sick with the sight of

so many worms; but (would anybody believe it?) not a worm was to be seen. I could scarcely believe my eyes. The combs were molded somewhat where the dead bees still clung to them, but there were no moth webs and no worms. I began taking out the combs, and in every hive I found a colony of little black ants. They were mostly in the outside combs which contained some drone combs, and the cells were full of white ant-eggs—or larvæ—Prof. Cook will please tell me which. I took the empty combs then and placed them over colonies, instead of cooking them up, as I expected to do. Now, then, did those ants keep out the moth? or is all nature going to be kind to me after this, and let my things alone? MAHALA B. CHADDOCK.

Vermont, Ill., Feb. 14, 1889.

My friend, your invention is not new. The matter has been several times noticed, and I believe, also, several times mentioned in our journals, that, where a queen is by accident or otherwise carried into the honey-house, all the bees from a great stack of sections will find the queen and cluster around her, and sometimes you can make not only a nucleus but a nice little swarm of bees, and such a swarm will work as well as a natural one. Ants or spiders, if allowed access to empty combs, will keep out the moth-worm. Whether they appropriate the larvæ for food, or whether the moth is afraid of them, we are not able to say.

CAPTAIN HETHERINGTON.

The Largest Bee-Keeper in the World.

BY HIS FRIEND P. H. ELWOOD.

THE subject of this sketch would have gained distinction in any occupation, for nature has endowed him with indomitable will power, coupled with organizing and executive abilities such as would quickly have placed him at the head in any large undertaking. His power of comprehending the whole is no less remarkable than his ability to grasp, at the same time, the minute details of an extensive business.

John Edwin Hetherington was born January 7, 1840, at Cherry Valley, N. Y., where he still resides. He comes of a good ancestry, his father being an educated English gentleman, his mother a member of the old Judd family, of Connecticut. The father dying when the youngest of the three brothers was less than a year old, master John less than three years, the entire care and training of the children fell upon the mother; and the highest tribute we

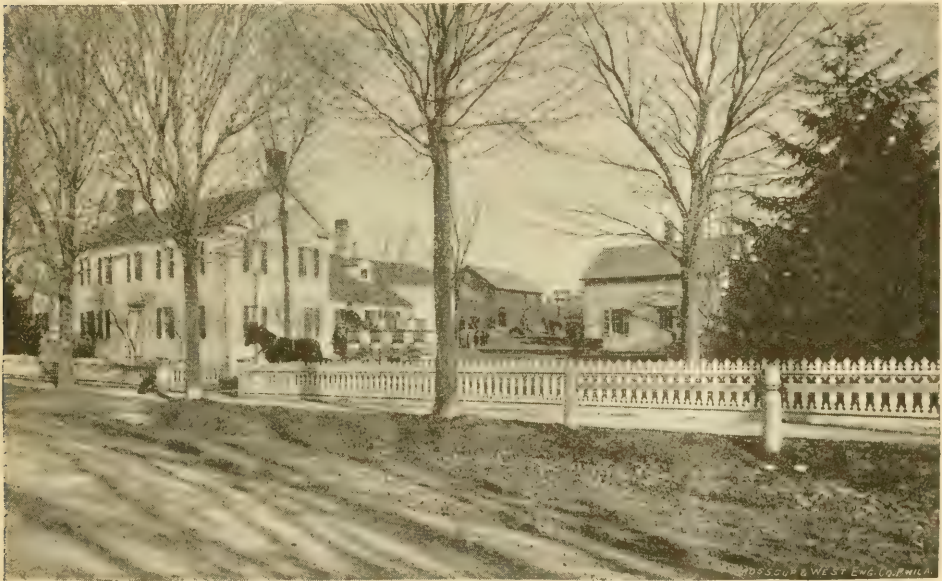


CAPTAIN HETHERINGTON'S FIRST LOAD OF BEES.

can pay her is to point to the characters developed in her sons. Although all three were in the military service during the late war, they came out as they went in, with spotless reputations, and abstainers from the use of tobacco and strong drink.

The captain bought his first swarm of bees when twelve years old, with money earned for that purpose. The thorough-going business methods of the mature bee-keeper were foreshadowed in the care taken in bringing home his first colony. The old family horse is put before the large spring wagon, and is driven by a member of the family. For the additional comfort and security of the swarm, the hive is suspended in a sheet, the ends of which are tied over a springing pole, while the ends of the pole rest on the shoulders of the two older brothers, who are seated on boards across the wagon-box, facing each other. This extra care seemed necessary for the swarm that was destined to contribute so much toward bringing apiculture from the dark-

he discovered that, while warmer for awhile, this double wall did not allow the sun to drive out the moisture, and the hive soon became damp, and consequently cold. He made six hundred of these, and I think they are as perfect mechanically as hives can be made. Not finding the double wall satisfactory he next put his bees into straw hives, a part of which were adapted to the Quinby size of the Langstroth frame. This was about the time of the commencement of the civil war. These box straw hives were excellent for winter and spring, and well suited to the requirements of the bees at other times. They were not of the usual straw-hive shape, but had flat tops, and were well adapted to boxing. They cost nearly two dollars apiece, and at one time he had about 1400 of them. With the immovable-comb straw hive he adopted a system of artificial swarming that was so successful that he often had not a single natural swarm from an entire apiary. Previous to this he had in use swarm-



CAPT. HETHERINGTON'S HOME, WITH LAST LOAD OF 32 COLONIES IN THE BACKGROUND.

ness of superstition into the full light of modern science. In contrast to this first load we present a picture of the last load of bees, driven by James, the eldest brother. On the one side is seen the captain's residence, while upon the other side is a honey house and shop, with the barn in the rear. At the back of the well-kept lawn are two observatory hives, not shown in the engraving. We endeavored to get in a view of the bee-yard, but it was not possible, for at this time of the year, it is several acres in extent.

The boy bee-keeper had good success, and within five years he had marketed honey by the ton, and had secured an average of nearly sixty pounds of honey in glass boxes from his entire apiary. He was a close observer, and quick to adopt improvements. Before he had been in the business half a dozen years he had perfected a double-walled hive with chamber of confined air between, and had applied for a patent on the same. On thorough trial

catchers for issuing swarms. These were placed before the old colonies, and held the clustered swarms until the apiarist could get around to hive them. It would be an item of interest in apicultural history to have some of these early hives and appliances illustrated. After a trial of the movable frame, the captain found that he could not do without it; but in his trial he made the important discovery that the straw hives with the Langstroth frames did not winter nearly as well as did the others whose combs were built against the sides of the hive, leaving no spaces at the end of the combs. He therefore adopted the newly invented Quinby hive, with closed-end frames. After an experience of years with open and closed end frames he decidedly prefers the latter. No new invention enters the apicultural world but that the captain notices it; and, if valuable, he adopts it. The honey-extractor was his as soon as it crossed the ocean, and he has used it ever since, believing it to be one of the

greatest inventions and one of the most useful articles in the apiary. He believes in producing both comb and extracted honey, in quantities and styles to suit the market. He experimented with comb foundation four or five years after the date of Wagner's patent, obtaining his samples from a Mr. Steel, of New Jersey. The invention came from Germany, as perhaps did also the samples. It was only a midrib, without any attempt at cell-walls, and was a failure, but lacked only the Yankee ingenuity to finish it by giving it side walls, and thus make it a success. The captain has very hopefully followed up this invention from its beginning. He was quite enthusiastic at the time, of receiving the first handsome samples from the Weiss machine; but, alas! he did not then know that it was made of paraffine, nor did he at first observe that the cells were intermediate in size between worker and drone. The queen was slow to use this size of cell except when the sheet was convex, or stretched so that the cells were enlarged, when she very freely deposited drone eggs in them, or where the sheet was concave, so that the cells were diminished in size when workers were reared. Noticing this fact he saw the necessity of making and keeping the cells of the proper size. To prevent sagging he tried cloth, paper, and wood centers, all of which were objectionable. Finally in 1876 he incorporated wires into the wax sheet, and met with complete success. Several years before this, Mr. Quinby and himself had made complete comb of thin tin coated with wax. This was tested in midwinter, the captain bringing bees into a warm room for the purpose; and although the cell bottoms were flat, it was freely occupied with brood and honey. In the manufacture of comb foundation, it was observed that impressing the rhomboidal bases upon the wax sheet would lay bare the wire unless a wasteful quantity of wax was used. To avoid this he left the cell bottom flat, thus also economizing in wax and simplifying its manufacture. Previous to his invention of flat-bottomed foundation he had persistently refused to use natural-base foundation in his honey-boxes, he being unable to make or buy any but that would leave an objectionable fishbone in the honey, and he did not propose to sell to others what he would not use on his own table, or what would injure the high reputation his honey had gained. With flat-bottomed foundation, twelve feet and upward to the pound, he now produces comb honey that, on the average, has a more delicate center than that built wholly by the bees. Last year Mr. Cowan, president of the British Bee-Keepers' Association, looked in vain for foundation or fishbone in Capt. Hetherington's honey. Next day, however, he visited a second-class bee-keeper and found the objectionable hard center in his honey, although he had used no thicker natural-bottom foundation than 10½ feet to the pound. The captain says this foundation is usually worked over, and its base changed; and I have observed that the wax then appears to lose some of its solidity, and becomes more like comb. Certain it is, this foundation makes more tender comb honey than any other we have been able to obtain. Capt. H.'s patent legally covers all kinds of wire supports for foundation, including wired frames, and he should be recognized by the bee-keeping fraternity as the inventor of wire supports for comb foundation. This should be most cheerfully given him, as he has so generously permitted all who wished to do so, to use wired frames.

He receives a royalty upon wired foundation from its manufacturers, the Messrs J. Van Deusen & Sons, of Sprout Brook, N. Y. The importance of this invention is becoming more apparent as time passes, and it must soon take rank as one of the greatest inventions of modern apiculture.

Starkville, N. Y.

P. H. ELWOOD.

To be continued.

UNFINISHED SECTIONS.

DECIDEDLY IN FAVOR OF THEM.

FRIEND ROOT:—Noticing your request in regard to unfinished sections, p. 92, I will give you my experiments and conclusions in regard to the matter. At the close of the season of 1887 I had about 500 unfinished sections on hand. The combs were nicely drawn out, and the sections white and clean. I placed them in crates, *without scraping off the propolis*. I piled the crates up as compactly as possible, and covered them so as to exclude all dust. They wintered in good shape—in fact, they looked as well when I put them on the hives the next spring as they did when taken off in the fall. Thus I was led to believe that they would look as well when completed as those built from new foundation in new sections. Now for the facts: On part of the hives I placed these sections, and on colonies of equal strength I placed crates of new sections. The season opened badly, and the bees were in no hurry to go upstairs. They showed a decided preference to staying in the brood-nest; but those colonies that were supplied with unfinished sections commenced work above first. The sections—that is, the wood—looked rather bad, but the capping was as white as the others. In our market such honey sells as well as any.

The colonies having new sections were about a week behind in starting and capping. There was one exception. One colony completed new sections before the rest had capped honey in the crates. They also cast the first swarm of the season. *They are also the worst robbers I ever saw.* They did not need feeding in the spring, because they fed themselves at the expense of their neighbors. So full of mischief have they been, that we call them the "den of thieves."

From the light of what experience I have had, I believe that it pays to keep unfinished sections. I place one or two in every crate of new sections as a decoy, and am fully convinced that it pays. I shall experiment on the same line next summer, because this season honey came in slowly up to buckwheat bloom, and that may have had something to do with the result.

Hereafter I shall cut my foundation for sections 3½ in. square, as by doing so I get combs built clear out to the wood. I use the 4¼ by 4¼ section.

I did not scrape off the propolis in the fall, as I thought that I could keep them cleaner by handling them as little as possible. You may place me on record as being of the opinion that a colony will complete a crate of unfinished sections sooner than a crate of new sections, even if the latter has a decoy section.

THE WORLD TYPE-WRITER.

I do not wish to close without saying a word in favor of the World type-writer. I am well pleased with mine. After two weeks of practice I can write faster with it than I can with a pen. The

other evening I wrote off a song containing 300 words, in ten minutes, making only five mistakes.

WILLIAM E. GOULD.

Fremont, Mich., Feb. 9, 1889.

It does not seem to me that you hit the point exactly until you come to the concluding part of your last sentence. The question is, "Will bees store more honey in a whole crate of partly finished sections than they will in a crate of new sections filled with foundation with, say, *three or four* partly finished ones in the middle as decoy sections?" We should like to have more facts from actual experience in regard to this latter point.

HOW MUCH IS CONSUMED IN WINTER?

IS IT FAIR TO ESTIMATE FROM OCT. 1 TO MAY 15?

FRIEND ROOT:—In your comments on page 61 to the answers to Question 102, you ask whether your explanation of the widely different reports is not a good one. I don't think you have touched the real root of the matter at all, so please let me give my idea.

The time specified, from October to May, includes time that can not be properly charged to wintering, but includes much time when bees can fly freely, when more or less honey is gathered, and when large amounts of brood are raised. In my answer I estimated the amount of honey in the hive Oct. 1st, less the amount on May 1st, without making any account whatever of the amount gathered and consumed during the time. The amount of honey gathered in the spring before May 1st varies very widely in different localities and in different seasons in the same locality. In Northern Iowa I have known over 40 lbs. per colony, over and above what ever might have been gathered, to be consumed between the dates mentioned; and I remember one season at least where there was fully as much if not more honey in the hives on May 1st than there was Oct. 1st previous. It can easily be seen how impossible it is to get accurate reports to cover so long a time. Again, it is very evident that several of those who answered this question did not do so with reference to the full time covered by the question; in fact, Prof. Cook and Dr. Miller name other dates.

On page 41 friend Doolittle speaks of the climatic changes going on in his section of country on account of the destruction of forest-trees. In the far western prairie States the opposite change is taking place, as more artificial groves are being raised than natural ones are being destroyed. And right here let me repeat what I have already written, that it is useless to expect success in outdoor wintering in the far North, unless the hives are well protected from direct winter winds. A thick grove, not simply a hedge of evergreens or other brushy trees, is best; but I have known success obtained by the use of high tight board inclosures.

Havana, Cuba, Feb. 2, 1889. O. O. POPPLETON.

Friend P., your points are well taken. We have been accustomed to say May 1, because we can not say that our bees are safely wintered until about that date. I do not believe that anybody has overdone the matter of providing windbreaks, very much.

NOTES ON MARCH GLEANINGS.

AND NOW PROF. COOK TAKES FRIEND CORNEIL TO TASK A LITTLE—SEE PAGE 172.

EDITOR GLEANINGS:—I read March GLEANINGS, as I do every number, with much interest. You are to be praised and congratulated for giving us such a rich meal each fortnight.

Mr. Corneil's article, like all of his writings, shows honest, painstaking, conscientious work. His authorities and quotations are excellent and correct, but his conclusions may not be warranted. True, we must have the three kinds of food, and that at frequent intervals. Neither one nor two of the three kinds, carbo-hydrates (starch and sugars), fats, and albuminoids will answer. All *must* be present. But, can we reason that bees must have the same, and at as frequent intervals? Nay, verily, I think not. I have known the Texas horned lizard—usually called horned toad—to live for months with no food. Such reasoning as Mr. Corneil adopts above would pronounce this absurd and impossible. A bear will live in winter, and breathe very little, almost none at all, yet the circulation continues. *Our hearts* would not propel such blood at all. They are not made that way; but the bear's is and does. Now, it is my opinion that bees may pass the winter with no air other than may pass through the hive, and that they may also do well with no nitrogenous food except that which is already in the blood. The bear passes the winter with only the fat of its own body to keep the vital engine at work. May not bees, then, live on pure carbo-hydrates during their winter quiet? I believe so, and, as I said in a recent article sent to GLEANINGS, I shall soon know.

As to air, I kept a colony sealed in ice, at the opening of the hive, one whole winter. It was covered with snow, and wintered exceptionally well. The ice was still intact in spring, when I dug out the hive. Now, there can be no mistake about this. I have tried to repeat the experiment, but without success. It needs a nice adjustment of conditions which I have failed to arrange. Let me say that I froze up the entrance after a very severe winter had commenced. Those bees secured all their air through the hive—doubt it who may.

Sorry, friend Root, that you say science and art are at variance. I say, *never*. In our haste to generalize we assert what is not science. Thus pseudo-science and art, or practice, differ. The chemist said there are no nutritive elements in the silage not in the dried food. That was true. Had he said the dry food is as easy to digest and assimilate as the silage, he would have stated, not a scientific fact, but an untruth, and the cow would have shamed him. We ought all to be careful in our generalizations and statements. Even then the best will make some mistakes.

I like Rambler's bee-dress very much, and Ernest's new Dovetailed hive. How can the board cover be made so it will not twist or warp?

Agricultural College, Mich.

A. J. COOK.

And now, friend Cook, are you not a little mistaken? As soon as I read the sentence, "Sorry, friend Root, that you say science and art are at variance," I carefully scanned my remarks to see where I have even intimated that science and art might be at variance, but I do not find it. All I do find is

this: "If practice and theory should give different results, I would stick to practice." What I meant by it was, that I should at once conclude that science (?) was making a mistake. I know that all of us are often too hasty in drawing conclusions, but I believe that I entirely agree with all you have said in the above.

We are glad you like the Dovetailed hive. As to the cover of the Dovetailed hive, it can not warp, because the ends are driven into longitudinal grooves of the end cleats, which for additional security are nailed. That there may be a twist or wind to such a cover is possible but usually not probable, we think. It should, of course, be kept painted. This cover is similar to the one used by Mr. Heddon, Dr. Miller, and other extensive bee-keepers. If we are correct these gentlemen like them better than any other kind.

KEEPING DIFFERENT KINDS OF HONEY SEPARATE

When Extracting at the Close of the Honey-Flow.

DADANT & SON GIVE US SOME IMPORTANT FACTS IN THE MATTER.

FRIEND ROOT:—On page 126 you ask us our experience concerning harvesting the different grades of honey separately. We wish to say, that we have never tried to leave the entire honey crop on the hives from May till October, but that we do harvest each crop separately. We will ask you to quote from page 436 of the Revised Langstroth: "Some apiarists extract the honey as fast as it is harvested by the bees, and afterward ripen it artificially by exposing it to heat in open vessels. We do not like this method, and prefer to extract the whole crop at once. It is much more economical, for, with our system, one skilled man attends to as many as five or six apiaries during the honey crop, and extracts at leisure afterward, with almost any kind of cheap help. Since honey has now to compete in price with the cheapest of sweets, the question of economical production is not to be disregarded." Now turn to page 444 of the same book. "In localities where there are two distinct honey-crops, each crop should be harvested separately. Thus we always extract the June crop in July, and the fall crop in September." We will add that we never have any mixture, except that of clover with basswood (the basswood crop being of no account here), or the mixture of different fall flowers that bloom at the same time. We will say, also, that we find differences at the same date, in the honey of apiaries four or five miles apart, owing to the greater abundance of one certain kind of blossom in each apiary. Thus we have different grades of honey at one time; and the honey of one barrel can not be taken as a specimen of the honey of another barrel harvested at the same date in a different apiary. The date of granulation also differs, probably owing to the greater or lesser density of the honey. We are not the only ones who have noted this, for Mr. J. M. Hambaugh, of Spring, Ill., has had a similar experience in different apiaries which he conducts according to our methods. CHAS. DADANT & SON.

Hamilton, Hancock Co., Ill.

AMERICAN AND SWISS FEEDERS.

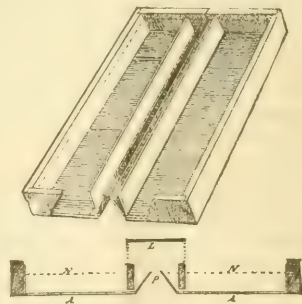
THE MILLER-WARNER FEEDER NOT NEW.

THE following article we copy from the November number, page 215, of the *Revue Internationale d'Apiculture* (French). The translation, by W. P. Root, is as follows:

Similar needs arising in different countries gives birth to the same ideas and inventions, without the inventors having necessarily copied from each other. Such is frequently the case in apiculture, the best instance of which we can cite being the movable-frame hive which Langstroth invented in America, while, but a short time after, Berlepsch, in Europe, transformed the single-barred hives of Dzierzon and of his predecessors, completing the framing of the combs by suspending them, as in the Langstroth model.* The same matter comes up to-day in regard to utensils of far less importance.

After describing and illustrating the Miller-Warner feeder, already given in our columns, the editor, Mr. Bertrand, says:

Now, several years ago there was used in Switzerland a large feeder, invented and manufactured by P. von Siebenthal, in Aigle. It is constructed on the same principle as the American feeder, and does not differ materially. The two troughs are of sheet iron, varnished, and surrounded with wood on three exterior sides. The fourth side is slanting instead of being made vertical, that the bees may have access to the liquid. To prevent them from getting drowned in the troughs, a permanent vertical partition separates the slanting wall, or side, from the trough proper. A space two millimeters ($\frac{1}{50}$ of an inch) high runs between the partition and the bottom of the trough, giving a free passage to the liquid. A sheet of glass, movable, and resting on the two partitions, closes the space between the two platforms above, and retains the heat. See Figs. as below.



A, A, troughs. L, sheet of glass. P, passage for the bees. N, level of the liquid.

The troughs are independent of each other, and can be used separately, and they do not permit of the bees going out, if their dimensions are adapted to the inside of the hive. The sheet of glass being placed on, the cloth covering and cushion are put back. The troughs adapted to the Dadant hives

* Sixty years previously, Francis Huber had conceived the idea of making frames movable by adjusting them to his observatory hives; and Quinby, in the later years of his life, went back to the invention of Huber when he made his hive with fixed frames.

have an interior dimension of about 51 centimeters (20 inches) long and $6\frac{1}{4}$ inches broad. By giving 6 centimeters ($2\frac{1}{2}$ inches) in height to the framework, we obtain about $1\frac{1}{2}$ inches of height which can be utilized for holding liquid. That done, by the opening of the interior wall about 4 liters (a little over a gallon) per trough, or 8 liters per hive, may be put in, and a good quantity will be taken by the bees in a single night.

FOOT-POWER VS. HAND-MACHINES FOR PUTTING FOUNDATION IN SECTIONS.

C. C. MILLER IN FAVOR OF THE CLARK.

ON page 68, Jan. 15, is "A Correction" which I think needs a correction. The last sentence reads, "With regard to the relative merit of the Parker and the foot-power machines, our experience says that the latter work more rapidly and easily, but the Parker does rather *better* work; that is, the foundation is made to hang straighter after it leaves the machine." If, in place of "foot-power," you had said "Gray," I should make no objection; but as "foot-power" includes the Clark, your statement does not agree with my experience. Having had a large experience with both the Parker and the Clark, I feel pretty competent to compare them. It takes so much strength to use the Parker, that my assistant could use it only a short time without stopping. Perhaps, while I am at it, I may as well compare the three, premising that I have very little acquaintance practically with the Gray. Although the Gray may not make quite so good work as the Parker, the labor is lighter, and the Clark takes the least labor of the three; and besides that, it makes *better* work than either of the others. When using the Parker I was troubled by foundation occasionally dropping out of the sections—remember, I use full-sized starters—but it is a very rare thing to have foundation drop out after being fastened with the Clark, although such sections have been trotted back and forth to out-apiaries till a good many have traveled 20 miles.

Friend Root says, that, with the Parker, "the foundation is made to hang straighter after it leaves the machine." I suppose that is true of the Parker as compared with the Gray. The Clark excels the Parker in this respect, in my experience. Indeed, for my use I think the Clark excels in *every* respect. Probably for friend Root the Gray is better, because he uses shallow starters, and has his sections tumbled promiscuously into a basket. I should not want full starters subjected to such treatment. Immediately on leaving the machine I want my sections set upright, either in a super, or preferably in a pile ready for supering.

I suspect that some who have tried these machines will wonder at my strong preference for the Clark; but if they use the Clark *right* they will cease to wonder. The Gray and Parker both depend upon pressure with a sliding motion, to fasten. With the Clark there is to be *no sliding whatever*. All that is needed is a quick swing of the feet, making the presser sink the foundation into the wood, and then the feet come back with a rebound, the whole performance requiring very little strength. I think it would be well if friend Root would change the instructions in his price

list; for if I had to use the Clark as there instructed I would then probably choose between the Gray and Parker.

It remains to be said, that the chief trouble I have had in using the Clark has been in using too much strength, and pressing the foundation so hard as to cut it entirely off, or so nearly off that it was held by a very slight hold. Possibly I ought to say, that, rather than too much strength, the trouble was in having the foundation too warm and soft.

FAILURE OF WHITE CLOVER.

After the severe drouth of 1887, which appeared to kill out a good share of the white clover, root and branch, I watched with intense interest to see what it would do in 1888. As the first green leaves showed, there seemed promise of a fair crop; and when the blossoms opened there was, without exception, the heaviest bloom I ever remember to have seen. The disastrous season of 1887 had so diminished my numbers that I did not average more than 35 to each apiary, and, with such an apparent harvest, and the ground so lightly stocked, I confidently counted on a big yield per colony. The average per colony, spring count, was not quite 12 lbs. I have some doubts whether any great portion of that 12 lbs. was from white clover. I know that a good part of it was not, and I think scarcely any of the stores for winter were from that source. Is it to be, that white clover, like buckwheat and some other things, will have its seasons of failure to yield nectar? or is there any truth in the theory of some, that white clover yields no nectar the first year it blooms after coming from the seed? Although this may be true, it does not seem probable that a whole season's blooming will take place, and no nectar in the flowers. Or is the failure due to electrical conditions, which is equivalent to saying that we common bee-keepers can't tell any thing about it?

Marengo, Ill.

C. C. MILLER.

What we said on page 68 had more direct reference to the Gray machine than to the Clark. When we used to use the Clark we fastened foundation by using pressure and the rubbing motion; but had we used pressure alone, no doubt we should have had better success. We are very glad to get the testimony you give; and, in accordance with your suggestion, we have changed the directions in our price list so as to conform to your method of fastening foundation.

PAINTED VS. UNPAINTED HIVES.

FRIEND DOOLITTLE GIVES US SOME VALUABLE FACTS IN REGARD TO THE MATTER.

AS the season of the year for painting hives is drawing near with us here at the North, and has probably already come to our brethren of the South, I thought a few words on the desirability of our doing so might not be amiss at this time. It will, I think, be admitted by all, that hives look better and will last longer, if painted, than if left unpainted; but I mistrust that \$15.00 a year will sustain more hives if spent for lumber alone than if spent for paint and lumber; yet when we take the looks into consideration, probably there is little difference in favor of either, providing that the bees would do as well in one as

in the other. In this respect, I consider the unpainted hive much better suited to the wants of the bees, and contend that bees will not do nearly as well in painted hives as they will in an unpainted one. Wherein is an unpainted hive better than a painted one? Principally in this, that, if properly covered, it will keep the bees dryer at all seasons of the year, and, owing to this dryness, they are consequently much warmer. As unpainted wood is porous, the moisture evaporates through all parts of the hive, keeping the bees warm, dry, and quiet, thus avoiding an undue consumption of honey, as well as bee-diarrhea. Several years ago I had a number of box hives, some of which were painted, while others were not. I set them out of the cellar about the first of April, in as near an equal condition as could be. In the morning after every cold frosty night, there would be water running out of the entrance of those that were painted, and on tipping them up the combs were found to be quite wet near the outside of them, or next the walls of the hive, while those in unpainted hives were dry and nice, no water ever showing even at the entrance. Those in the unpainted hives increased in numbers faster, and swarmed from one to two weeks earlier, than did those in the painted hives.

"But," says one, "I use corn-cobs, cut straw, forest-leaves, and other absorbents in the top of the hive, to get the moisture out, by letting any excess that may arise pass through them and out at the top of the cover." This will help some as far as the moisture is concerned; but if not done on a scientific plan, it will let out much of the heat by such a direct-draft process, which should be retained in the hive. Even if done properly, I can not help thinking that hives will keep bees better if unpainted, because in this case the moisture passes out of the hive in all directions. Paint is useful only so far as looks and durability are concerned, and is positively injurious as retarding the evaporation of moisture. This is the result which I have arrived at, after years of experience and close observation with single-walled hives, and I believe the damage is greater by far than the cost of a new hive occasionally, where ordinary hives are used.

So far I wish it understood that I have been speaking only of such hives as we used a quarter of a century ago, and not of the chaff hives of the present day. With the advent of the chaff hives came a new era in bee-keeping, and the case with these is entirely different, along this line of painting, than with the single-walled hive. With the chaff hive the moisture is driven through the first wall, which is always of unpainted lumber, just the same as it would be in case of an unpainted single-walled hive, after which it lodges in the chaff or other packing, from which it passes out slowly through any crack or crevice which may exist in the outer shell, and more largely about the joint in the top of the cover and between the cover and the hive. I use a cap or hood six inches deep, on all of my chaff hives, while directly over the bees is a sawdust cushion, which is only four inches thick. This cushion extends out over the chaff packing only an inch or so on all sides, or only sufficient to make sure that all the upward ventilation that can possibly exist must pass through this cushion, and also so as to make sure that no bees can get up into the cap. This leaves the larger share of the chaff walls uncovered except by the cap, so that whatever moisture escapes through the walls of the inner

hive into the chaff can at once pass up into the cap, and out through the cracks of the same, in all mild weather, which it also does to a certain extent on very cold days; yet in zero weather, where the same lasts for several days, I will find the inside of the cap all frosted over, which shows what an amount of moisture is continually passing from the bees. I think that, from this passing-off of the moisture as given above, comes the reason, largely, why bees winter so much better in chaff-packed hives, rather than that the extra protection has all to do with it, as some claim. Bees can endure any amount of cold which we ever experience in the U. S., provided they are kept dry; but dampness and wet they are not able to stand, where cold is added to it. From this comes the reason that bees winter tolerably well in a warm damp cellar, while with the same degree of dampness outdoors they generally perish; or if in such surroundings in any place where the mercury stays below the freezing-point for any length of time, as it necessarily must in our Northern clime. In this we get a little clew to add to the others, which, as a whole, causes our wintering troubles, for I believe these troubles do not rest on any one thing entirely. In accordance with my belief, as expressed in this article, I paint all of my double-walled or chaff hives, and leave all of the rest unpainted, considering that in doing so I am as near right as possible, taking all things into consideration. If any of the readers of GLEANINGS think that I am wrong, a trial of a few hives in each way will convince them which is right.

G. M. DOOLITTLE.

Borodino, N. Y., March 1, 1889.

I have for years, friend D., been pretty well satisfied that what you say is true. An old board with outsides somewhat decayed is warmer, and better for a bee-hive, than a sound board so thoroughly painted that it is as hard and cold, almost, as a marble slab. The old board partakes somewhat of the nature of the walls of the old straw hive. Since you mention it, I do remember of having seen water run out of well-painted hives, in the spring of the year, but I am pretty sure there would have been no such ice and condensation inside had the hives been unpainted, although I never thought of it until you suggested it. I am glad to know that your experience with chaff hives is like my own. Now, somebody is continually improving our chaff hives by making an outside shell of wide boards instead of slats something after the fashion of a corn-crib, as we make them. And while we are discussing this matter I want to say that my opinion has been for some time that the inside of a chaff hive would be better if made of common plastering-lath than as it is now. The principal objection to it is, that it would be more work. Some friend has adopted the plan of making the boards of this inside shell of thin lumber, perforated with holes; and as this was discussed in the journals some years ago, I wish the friend who had the idea would tell us how it answers for a wintering hive. Of course, if we make the outside exposed to the weather, with narrow slats, we must have these slats beveled on their edges, so as to let the water run down the outside as much as possible, instead of going through and wetting the chaff.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

THE TARANTULA; SOMETHING MORE CONCERNING ITS HABITS.

ALLOW me to correct your mistake in regard to tarantula nests. It is only a hole in the ground, without a cap, and the web very light. The nest you speak of is that of the trap-door spider, which is a much smaller spider, and without the hair. Tarantulas are both black and brown in color. The males have small bodies and very long legs; the females have longer bodies. I have captured a great many while in California, and killed and mounted some for sale, while working at my trade of taxidermist in Pasadena. To capture them, all that is necessary is plenty of water, a pair of large tweezers, and plenty of small pasteboard boxes; for if they are put together they will kill one another. I have frequently brought in 100 or more in half a day's hunt with a horse and buggy. When you find the location, a dozy clay soil, you pour water in their holes and the spider comes up to see what is the matter. You then catch him with the long tweezers, and box him. I killed them with chloroform, and then prepared with arsenic. I mounted some 500 while in California last winter. I sent you a fine specimen, if you remember.

Williamson, N. Y., Feb., 1889. T. G. ASHMEAD.

Very likely you are right, friend A.; but the boy who brought me the nest, with its velvet lining and neat little trap-door, told me, if I remember correctly, that it was the nest of the tarantula.

STARTING BEES INTO THE SUPERS WITH SECTIONS OF HONEY; WILL ITALIANS FILL THE SUPERS AS READILY AS THE BLACKS?

In GLEANINGS of Feb. 1, page 91, I notice an experiment of Elias Cole, in regard to the best thing to get bees to work in the supers as soon as put on. Last season I put nothing in the sections but narrow starters, until about the 1st of August, and the bees seemed loth to work in them. One day in taking off honey I put one section full of honey in each row in the super, and the next morning the bees had nice combs built on each side of the honey, so I did that way until the close of the season; and the result was the same in every case. I think empty combs would have done as well, but I did not have them.

Is there any strain of Italian bees that will work in sections, equal to the blacks? From my experience, I say no.

243 BUSHELS OF JAPANESE BUCKWHEAT FROM 5 BUSHELS OF SEED.

From 5 bushels of Japanese buckwheat that my brother bought of you last summer he had 243 bushels. It was sown on sod land at that.

C. B. JACKSON.

Eau Claire, Wis., Feb. 12, 1889.

Friend J., if you fixed a lot of hives with sections containing just starters, and none with unfinished combs for decoy, you certainly neglected to follow the instructions of the journals and the text-books. No wonder your bees didn't commence work. You probably lost a good many pounds of honey by the operation. I think the A B C book, as long ago as when it was first written,

recommended taking a few sections from a hive that had already commenced work; and as it is some bother to get the bees off, I advised taking the section, not only with the comb and honey, but bees too. With such a hint as that, almost any colony with sufficient strength will commence to work as you have described—that is, when the other colonies are working in sections.—I suppose it is true, that black bees, as a rule, go up into supers more readily than Italians. They also very often put all their honey in the sections, and then starve to death if the owner does not look after them, while the more prudent Italians would have a supply in the brood-nest before they commenced in the supers.—So your brother made a pretty good thing of the Japanese buckwheat, did he not, friend J.?

CHAFF PROTECTION FOR SURPLUS BOXES.

My principal honey harvest is from the heather, which comes in about the middle of August. From the variableness of our climate at that season of the year we have difficulty in keeping the bees in the super at night. I make an outer case, for wintering, about three inches all over larger than my hives (the Simplicity), and fill up with chaff. Now, would you advise this outer case to be kept on during our honey season? How would this compare with your chaff hive, mentioned in your A B C?

Now that you have done California, why not link your arm in that of Dr. C. C. Miller and come over and see your cousins "across the pond"? We have a cold climate in the north here, but you would find warm hearts before you. W. STOKES.

Carr Bridge, Scotland, Feb. 2, 1889.

Friend S., we certainly would advise you to keep the outer case on during the honey season. Most of our colonies are in chaff hives, and our experience has been most emphatically that chaff protection around the surplus boxes is certainly a good thing. According to our experience bees are more apt to build comb in chaff-protected supers than in those not so protected, and they are more inclined, also, to enter the boxes. The reluctance of bees to enter the surplus apartment might, we think, sometimes be overcome with chaff packing around the super. Thanks for the kind invitation.

BASSWOOD LUMBER; HOW TO GET IT CLEAR AND WHITE.

We have commenced making sections. We find considerable of our basswood is colored, and do not know how to account for it. The most of the stuff was cut this winter, and we know most of it was white and nice when sawed. We shall be glad to have any information you can give us.

Riverton, Va., Feb. 18, 1889.

J. SLACK.

Friend S., it takes years of experience, or, at least, it has taken us many years, to learn the knack of getting perfectly white basswood when dry. In the first place, the trees should be cut in cold weather, before the sap starts in the spring. The logs should be taken to the mill and sawed just as soon after cutting as possible; then the lumber must be sticked up right away, well spaced out, with good slant, well covered, in the open air. If these directions are strictly followed, you will have nice lumber, if you use nice timber to start with. It

takes four or five months for the timber to season properly. In fact, it had better not be used for almost a year after it is cut. We anticipate our needs a year ahead in getting basswood lumber, and have to keep a stock of from \$5000 to \$10,000 worth in our yard all the time.

FEEDING AT ENTRANCE DURING THE DAY.

Please tell me if it would do to place a feeder at the entrance of a hive through the day, and cover the feeder with a box, and have it so arranged that the bees can get to the feed, but not out of the box. My bees get wild when I feed them a little.

Muncie, Ind.

E. W. HITCHENS.

Friend H., you could feed bees in the manner you propose, but we would not advise it. Better put the feeder on top of the brood-frames. If there is not space under the cover, put on an extra super or brood-chamber. Feeding at the entrance during the day is dangerous business, especially for beginners. We sell an entrance feeder, to be used during the day, but after all we regard it safer to use an entrance feeder at night, or, better still, put it upon the brood-frames as stated. Bees are apt to rush out of the hive in excitement if fed during the day, when no natural stores are coming in.

A SHRUB WHICH BLOSSOMS WITH THE SNOW ON THE GROUND.

Foraythia viridissima is a hardy early-flowering shrub, introduced some years ago from Japan, where it is said to blossom on and under the snow. I have seen it flower more than once on top of snow one or two feet deep, in this country. It seems that, while the ground is covered with snow, the sun causes the buds to burst, partly by reflection I suppose. Some people call it golden-bell. The branches are thickly covered with yellow flowers, which it produces any way; and if it is no honey-plant, I should say the pollen would be very acceptable where enough of it could be planted for bees to gather it. The shrub is hardy, very attractive, and not very fastidious about soil or location, but blooms, often, when nothing else can be found, like the witch-hazel in the fall. Perhaps others will send in their experience.

Sandusky, O., Feb. 3, 1889.

F. J. M. OTTO.

Friend O., where can this plant be obtained? Is it found in the catalogues, or does it grow in the woods like witch-hazel? I do not suppose it would be worth very much to the bees, as it blossoms almost too early, but it might be interesting as a curiosity.

A SUGGESTION FOR THE CLARK SMOKER.

I have bored an inch hole opposite the large end of the cold-blast tube in the Clark smokers, and over that hole I fastened securely a 2-inch tin screw cap, of the flat variety (not the kind that have a convex base), so that we can more easily clean out the tubes that are sometimes so liable to choke up with soot. Please try this feature on an old smoker that needs cleaning. The spring need not interfere, as the center of the tin cap need not be exactly over the tube. It is true, there is a patent on the caps, but the caps do not know it or say so.

Terre Haute, Ind.

H.

When we had the old blast tube we had thought of putting on the feature you speak of; but since enlarging the tube, such a pro-

vision is not so necessary. It might prove a convenience, but the advantage we think would hardly warrant the expense.

AN EYE-WITNESS TO THE QUEEN'S SEPARATION FROM THE DRONE AFTER MATING.

On page 92, Mr. E. A. Pratt speaks of queens and drones mating. I was going out to my bees one day, when two bees came whirling down in front of me and fell on to a pumpkin leaf. It proved to be a queen and drone. The drone acted as if he had been stung by a worker. He held fast to the leaf with his feet, and the queen kept whirling over and over, about as a fly would if caught in a spider's web, until she freed herself, then she flew out of sight in an instant, and the drone remained where he was on the leaf, but showed life for only about three minutes.

S. R. FLETCHER.

Onawa City, Iowa, Feb. 19, 1889.

Very good, friend F. We now have the whole thing from beginning to end, and I think that others have in times past reported pretty nearly the same thing you witnessed, so that we are able in our text-books to describe the operation from beginning to end, providing it always happens after about the same fashion.

CHAPMAN HONEY-PLANT SEED—HOW TO GET IT OF THE GOVERNMENT.

As I see some complaint in GLEANINGS, on page 134, by A. L. Lane and you about the distribution of the Chapman honey-plant seed by the Department of Agriculture at Washington, I want to say that I too read the notice in GLEANINGS last spring, and I at once wrote to Hon. Norman J. Colman, Commissioner of Agriculture, at Washington, for some seed, and soon got a little package of the same. I sowed some, and almost every seed came up all right. Some plants had, by fall, leaves 28 inches long. I believe if Mr. Lane had applied to Hon. Norman J. Colman, Commissioner, for the seed, instead of to his Representative, he would have received some.

JACOB RUCH, JR.

Gruetli, Grundy Co., Tenn., Feb. 21, 1889.

DISTURBING BEES IN COOL WEATHER; CLOSING THE ENTRANCE.

Referring to Question 90, disturbing bees in cool weather, please insist that all of your A B C class, and others whom you can influence, do make it a point, when examining bees while weather is too cool for them to fly, to close the front entrance of the hive with a cloth or block before opening the hive, removing the cloth or block when the hive-cover is replaced. You may try the plan in your dwelling when the weather is just right. One door or window may be open to advantage; but open a door opposite the one already open, and you can feel the draft, if you do not see the point. I hoped to read of this feature long since; but no paper that I have seen advances the advantage of shutting off the draft.

Terre Haute, Ind.

SALT AS A FERTILIZER.

Have any of the readers ever tried sowing salt on buckwheat ground? What was the result? I am contemplating sowing about 24 acres of Japanese buckwheat. I can get the salt for \$3.50 or \$4.00 per ton, and the ground is heavy loam. I have tried it on common wheat, and I think it makes it plumper and whiter.

All my bees are in splendid shape up to date. I have 10 in chaff hives on their summer stands, and 22 in the cellar under the house. They were put in Oct. 20, and are as nice as a new pin.

Jackson, Mich., Feb. 6, 1889. W. D. SOPER.

I would by no means think of applying salt at the rate you speak of, unless I had first tested it on a small scale. Now, please bear in mind that you can not test salt, phosphate, bone-dust, guano, or any thing else, unless you put it in your field in strips, leaving a strip without the fertilizer alongside of one with it. If there is a decided improvement in the fertilized strips, clear through the whole length, it amounts to something. Then you are ready for the question, "Does it increase the yield enough to pay the cost?" I am sure there is a good deal of blundering in the dark in this matter of fertilizers.

DR. TINKER DISCUSSES MR. SHEPHERD'S ZINC; SEE PAGE 11, JAN. 1.

Friend Root:—Mr. Shepherd's zinc is new, so far as I know, but the perforations are the exact length and width of those I have in my zinc. His zinc has no advantages over the usual style of perforating, as you state in the foot-note. Mr. Shepherd is also mistaken in supposing that more openings can be made in a given piece of zinc by perforating his way. The strips of zinc I use in my wood-zinc honey-board are only $\frac{3}{4}$ of an inch wide, and yet eight of these strips (the number used in a honey-board) have 352 perforations. Mr. Shepherd's zinc is one inch wide, and eight strips of the same length would have 372 perforations, or only 20 more than my honey-board now contains. But strips of my zinc one inch wide would have three rows of perforations, as you will see by the inclosed sample, which would make 528 perforations in the honey-boards, or 156 more than Mr. Shepherd's zinc would have in the same size of board.

Strips of zinc one inch wide, if used between wood slats spaced $1\frac{1}{8}$ inches, as they should be, would not leave enough wood in the slats to properly support the zinc, as you well observe. The wood slats in my honey-board are a little over $\frac{7}{8}$ of an inch wide by $\frac{3}{8}$ thick; and used with strips of zinc $\frac{3}{4}$ of an inch wide they make a strong honey-board; and if the zinc has two rows of perforations there will be all the perforations necessary for the largest colony.

I presume Mr. Shepherd's perforator is made of wood, carrying a punch and die, as it would cost about \$75.00 to make a good iron machine to go by a belt. The wood machine can be made to do very fair work at the start, but the dies are soon spoiled. Good perforated zinc is now so cheap that I can not think it would pay any one to make a wooden machine.

DR. G. L. TINKER.

New Philadelphia, O., March 2, 1889.

HOW TO KEEP HONEY FROM CANDYING; PERFORATED ZINC NOT A PREVENTIVE OF SWARMING.

Can you tell me of a method to prevent honey in the comb, and also extracted honey, from candying? Can swarming be successfully prevented by placing perforated zinc before the entrance so as to keep the queen from flying?

S. HOWE.

Clarence, N. Y., Mar. 4, 1889.

Candyng can not be prevented entirely, but you can do a good deal toward it. See what is said in the A B C book, especially in

regard to extracted honey. If it is in the comb the temperature should not be allowed to go down to freezing. Swarming can not be prevented by the use of perforated zinc, although it may be thwarted for the time being. The zinc simply prevents the queen from going out with the swarm. The latter, in her absence, will usually return. But it is not advisable to let the bees make a second attempt. Trying again, and failing, they will be pretty apt to destroy the queen. The zinc is a convenience while you and the rest of the family are away.

BREAKING OF ONE-PIECE SECTIONS, AND HOW TO PREVENT WHEN THE TIMBER IS TOO DRY.

Last spring, after I had put on the first sections, I carried a crate containing about 350 to the attic, under a slate roof. Temperature was 110° to 130° during the clear days. When I came to use them, several weeks later, they were so dry I could not fold them without breaking. I carried them to the cellar for a day, when I could fold without a single break.

A NEW FORAGE PLANT.

The *Am. Agriculturist* for Feb. tells of a new forage plant called "serradella." Dr. A. W. Thornton, Washington Ter., speaks of it as being valuable for bee-pasturage. It is planted about corn-planting time, and blooms from July 1st to frost, so it can be cut twice. It is equal to timothy hay for feeding.

W. W. KULP.

Pottstown, Pa., Feb. 11, 1889.

Your ideas in regard to handling sections to make them fold up are good, friend K.

ITALIANS BEST, HYBRIDS INFERIOR, AND BLACKS POOR.

I have 50 strong colonies of bees—blacks, Italians, hybrids, and albinos. The Italians are the best honey-gatherers I ever saw. For Texas they are the bee. If honey is to be had, they will surely get it. My best Italian colony gave me about 90 pounds of comb honey. My best hybrid colony gave 50 pounds of comb honey; best black colony, 35 pounds of comb honey. All of them had the same showing. The flow from the horsemint lasted about 30 days, being the only good flow from that source since 1884.

Lexington, Tex., Feb. 12, 1889. W. S. DOUGLASS.

DECOY HIVES; BUILDING UP AN APIARY BY MEANS OF.

I have been reading your A B C, and was attracted by your article on "Decoy Hives," under "Swarming." I am but a novice, and have had very little experience in bee culture, and am indebted to Mr. F. Danzenbaker and your A B C for what little I know. In 1886 I noticed about 100 bees flying about our barn in swarming season, and immediately put an old bee-hive there. Next day at ten o'clock there was a large colony; that afternoon there were a few more bees around the gable end of our house, and I put a hive there. Meanwhile I had put another hive in place of No. 1. (I will designate hives by numbers.) The next day I had a second swarm in No. 1 and one in No. 2. They had crossed the Delaware, which is two miles wide at this point, and had half a mile from our place to the river; and as it is a marsh for fully a mile to the first house on the New Jersey side, they must have flown at least $3\frac{1}{2}$ miles. Subsequently I had two more swarms from across the river, and two more from this side, all outside of

my small apiary of 14 hives at that time. There was a man who followed swarm No. 1, from the river-bank up to our barn, and saw them go into my hive. Now, as I was watching for them, and had made preparations for them, and as he had no hives to live them, whose ought they to be? I offered them to him; but when he saw my preparations for them he would not take them. He is my cousin's husband, and I afterward got two swarms off the place from him, so we are good enough friends, but I don't know who had the legal right. In 1887 I took three more, and one in 1888, by using decoy hives. WM. S. SLOAN.

Claymont, Delaware, Mar. 3, 1889.

Friend S., your facts are very valuable. From what you say it would seem that bees have a special fancy for selecting special localities for migrating. What it is that attracts the new swarm, or decides them on going in a new direction, is not very fully understood, and we should be very glad of some facts bearing on this point. If we were sufficiently well posted in regard to their habits and instincts, perhaps we might induce them to do the swarming themselves and go into hives already prepared.

IS THERE ANY CURE FOR SPRING DWINDLING?

Do you know any cure for spring dwindling? If so, please let me know. My bees are all getting along finely except two colonies which keep flying out in cold days, and dying. They are in 4-inch walled chaff hives, good and strong, with plenty of bees and plenty of honey. What ails them? What can I do to cure them? C. S. JOHNSTON.

Emilonton, Pa., Feb. 21, 1889.

Friend J., no one is prepared, that I know of, to say exactly what causes spring dwindling. It may possibly be somewhat dependent on the queen, or it may be some sort of disease that afflicts certain hives. The fact, however, that most of the veterans have succeeded in getting along without any of it for a good many years, would indicate that management has much to do with it. Have those two colonies that keep flying out in cold weather exactly the same stores that the rest have?

BEES GATHERING BITS OF OLD WAX.

Let us have facts—real, certain, unmistakable facts: There can be no science without them. Last summer, on the 2d day of July I transferred a swarm of hybrid bees from a post-oak log, in which they were found, and put them into a movable-frame hive, and filled only one frame with comb, and stuck some pieces to the under side of the other frames. The bees from that hive would gather the comb that was left sticking to the old log, and carry it into the movable-frame hive, and build comb on the pieces which I attached to the top of the frames. I watched them, and I know whereof I speak. Has anybody else ever known such? The bees would gather it on their legs like pollen, in the heat of the day, when the wax was very soft. Don't think I am mistaken, and say it was propolis, for it was not, and they built comb with it. You could readily tell the comb they made of the wax thus gathered. E. ANDERSON.

Comanche, Tex.

Friend A., the fact that you record, in regard to bees carrying wax, is a matter of common observation. When they have

nothing else to do, and the weather is suitable, they very frequently do this if they can get access to wax.

REPORTS ENCOURAGING.

FROM 37 TO 76 COLONIES, AND 8620 LBS. OF HONEY; A GOOD REPORT.

FOUR years ago I sent my winter's loss to GLEANINGS; but this time I will send my last summer's gain. From 37 colonies, commencing with basswood, I extracted 6500 lbs., and secured 200 lbs. of comb honey. I have on hand for spring feeding 240 large combs that will weigh 8 lbs. to the comb, making 1920 lbs., or a grand total of 8620 lbs., and increased to 76 colonies. They are wintering all right yet. I did not pay out a dollar for help. My boy of 9 and girl of 11 years and I did all the work, except some very light that my sick wife helped on; and the saddest of it all is, she has left us since then, and gone to that home beyond. We took care of a garden of 13 lots in 3 different blocks. We work six days in a week, and serve the Lord in our humble way on Sunday.

QUANTITY AND QUALITY; ARE THE REPORTS OF LARGE YIELDS AN INJURY TO THE CRAFT?

Mrs. L. Harrison says those who report such large yields of extracted honey, and claim to produce it so cheaply, are an injury to the craft. As I have done both for the last 7 years, please tell the readers of GLEANINGS of the quality of that 1100 lbs. I sent you last summer; also of the two samples I sent to-day, for I pride myself in that I raise as good honey as the best in this part—at least I am no old bee-keeper. Ten years ago I knew nothing about bees. I had never seen a swarm in the air nor in a tree. I could not tell what a queen or a drone was. In the winter of 1880 a neighbor gave me two box-hive swarms. I have sold and lost a good many swarms since then. The Bible, GLEANINGS, A B C, and W. H. Stewart, of Orion, have been my guides every day since. F. C. SNYDER.

Orion, Wis., Feb. 26, 1889.

Friend S., we are very glad indeed to find that you pulled through after your winter's losses, and have made such a good record. Such a report is especially refreshing after such a season as 1888, when so many of the reports were discouraging. You see you have secured toward 200 pounds to the hive, and at the same time more than doubled. Your 1100 lbs. of honey was excellent; and one of the samples you sent us has something remarkably fine about it. I should say that at least a part of it came from red clover. Right glad am I to see that you have no hesitation in placing the Bible first and foremost among your friends and helpers.

FROM 55 TO 105, AND 4500 LBS. OF HONEY.

We commenced with 55 swarms—50 good, the other five very weak, and increased to 105. We sold one swarm, united some, and now have 96 in the cellar. Five more are now sold, to be delivered in the spring. The temperature has averaged 48—a little too warm. The bees seem uneasy most of the time. I can not remember of as mild a winter, and I have lived here for 32 years. We took off 4500 1-lb. sections—2000 basswood and clover, the rest golden-

rod and wild sunflowers. The honey is the nicest fall honey we ever produced. We sold 500 lbs. or more, cut right out of the brood-frames. The light honey brought $12\frac{1}{2}$ —2000 lbs., \$250. The dark honey brought 10—3000 lbs., \$300. Six swarms of bees brought \$15.00. All sold within 12 miles of home. We did not have enough to supply the demand. We think we have reason to thank the Master—don't you?

E. R. A. BRAINARD.

Postville, Iowa, Jan. 21, 1889.

To be sure, friend B.; and it rejoices my soul to see so many of the readers of GLEANINGS indicate even in their reports that they recognize in their work the all-wise Ruler of the universe.

1047½ GALLONS OF HONEY; THE LAST SEASON THE BEST FOR YEARS.

Last year was the best for honey we have had here in many years; 120 colonies made for me 1047½ gallons of honey; average per colony, 8½ gallons.

Padgett, Ala., Feb. 9, 1889.

B. B. TONEY.

Well done again, friend Toney. This makes another tiptop report for 1888.

11½ TONS OF HONEY LAST SEASON, AND 29 TONS FOR THE PAST THREE SEASONS.

My honey crop this season was 11½ tons, and for the past three seasons 29 tons. When you come to visit friend Freeborn next summer, just drive around this way, and I think we can show you a few "points" in our management worth seeing.

Mauston, Wis., Feb. 19, 1889.

FRANK MCNAY.

3500 LBS. OF HONEY FROM 32 COLONIES THE FIRST YEAR.

Last year I bought 32 stands of bees at wheat harvest, and during the fall I harvested about 3500 lbs. of fine extracted honey, and increased to 51 by natural swarming. They are all in very fine shape.

JOSEPH TRINDLEY.

St. Peters, Mo., Feb. 20, 1889.

REPORTS DISCOURAGING.

NOT ENCOURAGING FOR NEW SOUTH WALES.

WE are having a very bad season here this year. Last season I put an Italian swarm into a hive of comb foundation, Nov. 1, and on Dec. 8th I extracted 50 lbs. of honey from it, from white clover. This season, no signs of swarming yet. The Italians are the only ones getting honey. The blacks make scarcely enough to live on. When I say a bad season here, I mean in the "New England District of New South Wales."

JOHN S. RUTTER.

Armidaale, Australia, Jan. 7, 1889.

NOT ENCOURAGING FOR AUSTRALIA.

We regret to say, that this season the bees have not done any thing worth speaking of, and our trade in supplies has been correspondingly small. Reports are, however, improving, and men have told us of "pure Italians" (?) being found "in the bush" as we call it—that is to say, building in trees, etc., wild. At any rate, swarming has commenced at last; and if we have a long summer we might make up for some of the trade which we might have done if the season had been more propitious.

Sydney, Jan. 21, 1889.

HEBBLEWHITE & CO.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

TO TRANSFER IN WINTER.

IS it possible to transfer a colony of bees from an old-fashioned box hive to a hive with movable frames, in the winter? They have no honey in the old hive, and I wish to transfer them for feeding.

JOHN HOBBS.

Red Hook, N. Y., Feb. 6, 1889.

[Experts have done it frequently, but a beginner should not undertake it. The better way would be to pry off part of the top of the hive, and feed them as you would ordinarily a colony in a movable-frame hive. If they pull through all right, you can then transfer them during apple-bloom next spring.]

OAT HULLS INSTEAD OF CHAFF.

I am putting up a few chaff hives, but I have no chaff to fill them with, and I'd like to use them this summer. The question is, Would oat hulls do to fill them, instead of chaff? Don't you think that would be a good substitute?

J. L. EDWARDS.

Oxford, Ia., Feb. 7, 1889.

[Oat hulls might answer for a packing; but if you can possibly get chaff we would recommend you to use it instead. For further particulars, see A B C book on "Wintering," a prospectus of which we inclose you.]

HOW LONG FROM A START WILL IT TAKE FOR FOUL BROOD TO INFECT THE WHOLE HIVE?

How long would it take foul brood to get under such headway in a hive containing 12 Gallup frames that every comb should be affected more or less—say from $\frac{1}{2}$ to $\frac{3}{4}$ of all cells used in brood-rearing being affected?

D. W. C. MATTHEWS.

Ypsilanti, Mich., Feb. 7, 1889.

[After foul brood has made its appearance in a few cells in a hive, if neglected by the apiarist that long, it will take only about a week or ten days for it to affect every comb. In two weeks every cell of brood will be rotten.]

COFFEE-CANS FOR EXTRACTED HONEY.

Will large tin cans that roasted coffee comes in, holding 50 lbs. of coffee and 16 gallons of honey, be stout enough to ship honey in? Cans are boxed.

Madison, Ga., Feb. 12.

R. H. CAMPBELL.

[If the coffee-cans are securely soldered I should think they might answer; but as they are manufactured for shipping coffee and not for honey, which is so very much heavier, I think you had better test them carefully before risking very much honey in them.]

BEEES ALL "FROZE;" HOW TO START ANEW.

Can a person start up a swarm of bees by getting a queen and a pound of bees? Mine all froze. I should like to start again.

M. J. BOWLES.

Sexton, Ind., Feb. 4, 1889.

[With a pound of bees and a queen you can make a very nice start. Where one has lost all his bees, this is the best way to begin anew. It certainly is the cheapest.]

40 BUSHELS OF JAPANESE BUCKWHEAT FROM 1 PECK OF SEED.

We have received GLEANINGS regularly, for which we thank you. We are well pleased with it. The peck of Japanese buckwheat I bought of you last year I sowed on $\frac{1}{2}$ acre of ground. It yielded 40 bushels by measure.

J. N. BUZZA.

Kossuth, Pa., Feb. 18, 1889.

197 BUSHELS OF JAPANESE BUCKWHEAT FROM ONE POUND OF SEED, IN TWO SEASONS.

I was well pleased with the Japanese buckwheat I got from you. I got 1 lb. in 1887, and I raised three bushels. I sowed this, and got 197 bushels from four acres, and did not use any fertilizer or manure.

Vose, Pa., Feb. 25, 1889.

G. A. CONRAD.

5½ BUSHELS OF JAPANESE BUCKWHEAT FROM 6 LBS. OF SEED.

I sowed 6 lbs. of Japanese buckwheat last spring, and harvested 5½ bushels, and that on thin land without manure. I think it is the best buckwheat in the world.

T. R. CANADY.

Roark, Mo., Jan. 23, 1889.

THAT CALIFORNIA TRIP.

I have been much interested in the report of your trip. I was over much of the same route the year before. I am now moving out there. If you did not visit Pomona, you missed one of the nicest places in Southern California. The author of "Blessed Bees" lives at Pomona.

Green, N. Y., Jan. 17, 1889.

L. E. ST. JOHN.

PREVENTING INCREASE; A QUESTION.

How would the following method of preventing increase succeed? Follow Dr. Miller's plan of giving plenty of room in the sections; hive all prime swarms that come out, and prevent after-swarms by some well-known method; the following season, unite down to the original number at the beginning of the honey-flow, using the empty hives and combs to repeat the operation?

A. C. BUGBEE.

Lochiel, Ind.

[Your idea of uniting in the spring, so as to have your colonies all exceedingly strong just before the honey harvest opens, is one that has been considerably discussed, and some very successful honey-producers tried the method years ago.]

FRAMES PARALLEL OR AT RIGHT ANGLES TO THE ENTRANCE; WHICH?

Will bees do better to enter at the side or ends of frames in a house-apiary? I think I prefer to have entrance at sides of frames, but am not certain that it will do so well.

R. E. MASON.

Westminster, S. C., Feb. 19, 1889.

[Friend M., we do not think it is very material whether the frames are parallel with the entrance, or at right angles with it. We rather prefer the latter arrangement. Theoretically, the bees can better ventilate their hives during summer; but practically, there does not seem to be very much difference. Numerous tests have been made both ways, and there was no appreciable difference in the result, either in the amount of honey secured or in its proper evaporation.]

TWO OR THREE THICKNESSES OF PAPER INSTEAD OF CHAFF.

I come to GLEANINGS for advice. Another bee-keeper and myself conceived the idea that we would make several hives with double walls with two or three thicknesses of paper between, believing that paper is a non-conductor of heat or cold. Now, I want to know what would be the difference between them and chaff hives.

WM. BARCLAY.

Harmony, Ind.

[It is claimed by some, that two or three thicknesses of paper around the brood-nest, in between the outer shell, is equal to 3 or 4 inches of chaff—among them Francis Danzenbaker, of Claymont, New Castle Co., Del. As for ourselves, we can hardly see how the paper can be equal to chaff. It may be as warm, but it will not absorb moisture as well. G. M. Doolittle's article in the present number tells pretty nearly why chaff will be better than paper.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 112.—a. What is the largest number of L. brood-frames you allow a colony at any time? b. If you vary the number, say when you allow the most. Say whether you mean for comb or extracted.

Nine or ten frames of the large Quinby size, both for comb or extracted.

DADANT & SON.

a. Eight is the largest number. b. I never vary the number, either for comb or extracted honey.

GEO. GRIMM.

Eight. This is my number in brood-chamber. For extracting I add a second story, making sixteen frames.

A. J. COOK.

Working for extracted honey, a. 24, three stories high, eight frames each, in the height of honey-gathering, with extra strong colonies; ordinarily 16.

R. WILKIN.

For comb honey, 8; but I winter outdoors on two sets of 8 frames, one set above the other, and the upper set full of honey; for extracted honey, three tiers high, 8 frames in a tier, 24 frames in all.

E. FRANCE.

I allow 19—10 in brood-chamber and 9 above—for extracted honey. For comb honey, 8 frames below is generally preferred. The surplus should not be added before the bees begin to gather in the spring.

P. L. VIALLOIN.

a. 27 is the largest number I ever used at one time. b. I allow the most when the most are needed; for extracted honey I furnish the colony with all the combs or foundation they need, and tier up, using no honey-board.

DR. A. B. MASON.

a. Eight for box honey. b. In the early spring, especially if the colony is weak, I contract to five or six frames, and expand the brood-chamber as the season advances; but I do not contract during the honey-flow, to force bees into the boxes.

MRS. L. HARRISON.

We use a frame 10½x16 inside. Before putting on boxes we usually build them up to seven frames. When we had black bees we built up to eight. We usually reduce the number by one not long after putting on boxes. I would at least double the number for extracting.

P. H. ELWOOD.

a. Ten. But that's a very rare thing—seldom more than eight. b. Just before the harvest when the queen occupies the most room. This for comb honey. It is quite possible, however, that, all things considered, it is best to have the same number all the year round.

C. C. MILLER.

I have used as many as 48 in the best part of the season, when extracting. When boxing I would use 8, and the same for wintering. During the period when I am handling and preparing for the yield of either extracted or box honey, I use a number in proportion to the strength of the colony.

L. C. ROOT.

If I used the L. frame I would never allow a colony over seven when working for comb honey, and would use but five for a new swarm, up to the time of fall honey; then I would give them the seven,

For extracted honey I would allow ten L. frames all the while, unless the colony were very weak in the spring, and give room enough above to keep them from swarming. G. M. DOOLITTLE.

a. I frequently allow the equivalent of 25 L. frames at a time. b. I vary the number of combs according to the strength of the colony, but the same number of bees in a colony will occupy and use more combs during the honey-flow than at other times. This applies to extracted honey.

O. O. POPPLETON.

Seven is my usual number, with eight or ten as an occasional variation or experiment. I do not vary the number after sections are put on. When I winter on four frames, as I often do, I simply add one or two at a time, in the spring, until they have seven. For extracting I would put ten below and eight or nine above. E. E. HASTY.

I do not use the L. frame, so I do not know whether this question was intended for me or not. My frames are nearly the same in capacity as the L. frame. I use eight brood-frames at all times, except in building up light colonies in the spring by use of the division-board. I practice contraction sometimes during the honey-season, not by removing frames, but by an entirely different and I think a more natural and a better way.

H. R. BOARDMAN.

Your question is not precise. I suppose you mean to ask, "What is the largest number of L. frames you allow a colony at any time for brood?" etc. I allow a colony for the brood-chamber, all the L. frames they can fill with brood, no more. Ten frames filled with brood is my maximum. Whatever there is over is used for strengthening up weak colonies or forming nuclei. A variation from this rule is "neglect of duty" as far as I am concerned. CHAS. F. MUTH.

I always try to get as many frames as possible filled with brood before the opening of the honey season, and have had 12 frames reasonably well filled by June 20. Most of my hives for comb honey hold only eight frames; and if a colony can do more than fill that number it must help a weaker neighbor. For extracted honey I have always allowed ten frames. Sometimes I allow the queen free access to three or more stories of empty combs, which I have known to result in twenty frames of brood. JAMES A. GREEN.

In using the Langstroth frames in the brood-chamber I would never use more than eight, because we do not want the L. brood-chamber larger than that. We have found splendid results to flow from contracting that size of brood-chamber to five L. combs during that part of the season when the bees were storing surplus, and at the time the creation of more bees would not bring them into the surplus harvest as workers. The time to contract or expand a brood-chamber depends entirely upon the periods of your honey-flow. I disfavor young bees for wintering; also extremely full colonies for wintering. JAMES HEDDON.

QUESTION 113.—*If you practice contraction, at what time do you contract?*

This question is answered by 112.

MRS. L. HARRISON.

I have never practiced contraction.

GEO. GRIMM.

I rarely use it except on new swarms, as given in answer to No. 112. G. M. DOOLITTLE.

On putting on supers. I don't believe so much in contraction as some. C. C. MILLER.

I do, and like it. I contract with a new swarm, in time of honey harvest. A. J. COOK.

I contract to the number of combs needed in the spring, and give more as needed. I don't contract to secure surplus. DR. A. B. MASON.

When they are placed upon their summer stands in spring, or when they commence gathering pollen and begin brooding. L. C. ROOT.

Not until the season is well commenced, and a fair amount of stores secured for winter, and the bees are building new comb. H. R. BOARDMAN.

Contraction does not seem to me to be suited to the needs of my locality. For comb honey I keep contracted pretty close all the time. E. E. HASTY.

Here we don't practice it. We contract only when a colony is too weak; but this should not happen when one is up to the business.

P. L. VIALLO.

I suppose this question refers to the contraction of the brood-nest, which I have practiced but very little, except when preparing bees for winter quarters. O. O. POPPLETON.

I contract in the early spring by placing a duck cloth over the lower frames or brood-nest, to facilitate breeding, leaving a hole for bees to go above for honey. R. WILKIN.

I contract the brood-chamber in spring only, in order to breed up. Reason, I want large colonies at the beginning of the season, and during the season I don't want to be obliged to feed in the fall. CHAS. F. MUTH.

I don't practice contraction any further than to put the bees on to one tier of brood-combs, 8 combs. Do that when the bees are strong—that is, when there are bees enough to fill the brood-nest and a case of sections. E. FRANCE.

We are opposed to contraction. Mr. Metelli (see answer to 111) answers for us, "To have colonies for honey in good order for the next spring you have to give them large hives, and to prepare them during the previous summer." DADANT & SON.

See my answer to 112. You may rest assured that I practice contraction, and know by experience that it is one, if not the greatest improvement, in modern honey production, whether for comb or extracted honey, but especially for the former. JAMES HEDDON.

Always at the time of hiving a swarm; generally as soon as a colony has swarmed, often before a colony has swarmed at the beginning of a honey-flow. With regard to the last two, and especially the last method, I am not altogether certain as to the advisability of contraction. JAMES A. GREEN.

Sometimes when boxes are put on, but usually when the queen is removed or artificial swarms made if there are any such. We formerly reduced the number to five, when the queen was taken out, but have since preferred to leave in another. If contracted too much, the quality of box honey suffers, and I think there are more piece boxes at the

close of season. Our first contracting for comb honey was in the season of 1873 or 1874, and the swarms were brought down to four of our combs, $10\frac{1}{2} \times 16$ inside.

P. H. ELWOOD.

QUESTION 114.—*How many pounds additional surplus do you think is gained by contracting?*

I do not know.

O. O. POPPLETON.

I have never had any experience in that line.

E. FRANCE.

With my method, no additional surplus.

DR. A. B. MASON.

Not an ounce, but more honey will be brought to the surplus box.

DADANT & SON.

I could not give an estimate. I think the gain pays for the trouble, and more.

A. J. COOK.

If by this question contraction during the honey-flow is meant, not enough additional to pay for the trouble.

MRS. L. HARRISON.

In some localities I have no doubt but that there is some gain by contracting; but here our colonies are so strong at the time of the flow of honey that there is no gain.

P. L. VIALLO.

Possibly as many pounds as they would store in the additional combs, say 15 or 20; but taken for a series of years, I'm not so sure they would store any more, and in any case it necessitates feeding usually.

C. C. MILLER.

Many stocks that would be lost if the number of combs were not reduced, are saved by contracting, and are in condition for gathering surplus. In such cases the gain equals the difference between entire loss and what proper management will secure.

L. C. ROOT.

I do not practice the manipulation in question. As excessive swarming is the main difficulty with me, I think (if I do not know) that getting an extra-large colony, and then crowding them above, would only make them swarm directly with no gain in pounds of honey whatever.

E. E. HASTY.

I don't believe that any additional surplus can be gained by contracting the brood-chamber during the honey season, unless the bee-keeper's time is worth nothing. Honey or sugar has to be fed again if a dearth or a cold wet spell follows the season, and honey or sugar has to be fed again for winter stores.

CHAS. F. MUTH.

I do not know, because I never weighed carefully to get at the exact number of pounds; but I get more surplus and less honey uselessly consumed by the bees; get that surplus in better and more attractive condition, and handle my colonies more easily and safely during the fall, winter, and spring, by practicing contraction.

JAMES HEDDON.

I have not practiced contraction long enough through good and bad seasons to answer definitely. I can recall instances where it seemed to me that contraction secured 25 pounds of honey more than would have been had without it. Doubtless this is more than could be expected on an average, but I feel very sure that contraction pays well when properly managed.

JAMES A. GREEN.

Contraction is now having a run. It is carried to extremes, and its benefits overestimated. With the inexperienced, and with honey-boards, particularly the queen-excluding board, it may make quite a

difference. In any case a part of the early honey that is usually stored in the brood-combs will be stored as surplus. This is the honey that bees usually winter best on.

P. H. ELWOOD.

Not any more, if you leave the colony as much as it ought to have. It may be different in other locations, but with me I find it safest to leave a colony all the white honey it has stored over and around the brood in an eight-frame Langstroth hive. Of course, if I should crowd them they would have to store part of this as surplus; but I do not find it safe policy here, as I have no fall honey to fill up on.

GEO. GRIMM.

In some seasons probably nothing is gained by any system of contracting the brood-chamber. The amount additional gained depends upon the season, strength of the colony, manner, and extent of contracting, etc. When honey is coming in steadily it can all or nearly all be forced into the surplus chamber for a period of about 20 days; but we must not lose sight of a most valuable fact, that hives or fixtures, or methods, however perfect, *will not produce honey*.

H. R. BOARDMAN.

Not any, if you call winter stores a surplus. Bees will store all the honey they can gather if they have sufficient room, no matter whether that room is in a nail-keg, barrel, old box hive, or one of the latest improved hives. All we accomplish by contraction is to get the most of the surplus, or the most of all of the honey gathered by the bees, stored in our neat sections, instead of in the body of the hive. If I have ever made it appear that bees would gather more honey according to their numbers where contraction was used, I wish to ask pardon, and correct the mistake. By contracting at the right time, or allowing contraction of the brood to be done by swarming, we save the amount of honey that an extra amount of brood would use, to go into our surplus. As this brood, when hatched into bees, would become consumers, this item is worth looking after.

G. M. DOOLITTLE.

Well, friends, I have been for a good many years rather of the opinion that contraction did not amount to very much, any way. Of course, colonies do well where the brood-nest has been contracted according to the latest and most approved theory; but I am afraid we lose sight of the fact that they also do well where no contraction is practiced. To make it a little plainer, I have seen a colony of bees build up, raise brood, and prosper at a tremendous rate, when they were in two-story Langstroth hives, with 10 frames below and 10 above. When more room was wanted they took it at the side or overhead, just as they chose. They did not have any dysentery nor spring dwindling, nor any thing of the sort; and I have seen this happen when colonies that were fussed up and fixed up did not do nearly as well. At the same time, I have known a tolerably fair colony that was raising brood at a very good rate, apparently killed by removing the quilt over them to put on a feeder. The openings made by turning up the quilt so as to give the feeder a place, permitted the warm air of the brood-nest to escape. They were found dead after a severe cold spell in the fore part of April. Other colonies that did not have the quilt over

them disturbed, stood the cold snap without any apparent injury. I am rather inclined to think that there are extremes both ways; but I believe a good nice dry worker comb is about as good protection as any sort of division-board. Perhaps you begin to think that I do not have any very decided ideas in regard to contraction, and I do not know but that you are about right.

HOW TO MAKE OUT AN ORDER FOR GARDEN SEEDS, ETC.

ALSO SOMETHING ABOUT DOING BUSINESS IN SUCH A WAY THAT IT WILL ADVERTISE ITSELF.

EVERY season it makes me feel sad to see the amount of paper and the amount of work that not only our customers but our clerks here in the office often use to make an order, or make out a bill for a few cents' worth of garden seeds. Now, please have a little faith in Uncle Amos, and let him convince you that he knows best. First suppose you want 9 papers of garden seeds. Almost all of you would commence:

One paper of Select Very Early Jersey Wakefield cabbage seed 5 cts.

The next item would be in the same way, and so on for the whole nine. Some of the friends who are in a hurry, sometimes, instead of "one paper," *nine times*, use ditto marks. When you get to the 9th figure 5, one above the other, I suppose that many of you go to work and "add up" the 5's.

Now, friends, you are wasting paper and time fearfully; yes, and you are wasting *money* besides, because many of you forget that 10 packages of seed are furnished at 4 cents each, so our clerks will probably charge you *more* for 9 packages than they would for 10. Now, then, let me tell how I would do. Thus:

Please mail me garden seeds as follows: One paper each—Wakefield cabbage, Eclipse beet, Forcing carrot, Snowball cauliflower, Self-blanching celery, Pepper-grass, Grand Rapids lettuce, Banana melon, Silver King onion, Alaska peas, 10 papers at 4 cts., 40 cts.

You will notice in the above, that, instead of giving the long name of the article as given in the seed catalogues, I have given only just enough so there can be no mistake. "Wakefield cabbage" tells what you want just exactly as well as if you wrote out "Select Very Early Jersey Wakefield cabbage."

Now, where you order simply five-cent packages the matter is very easy, you see; but suppose you have discovered that it is a great deal cheaper to buy seeds by the ounce than to get it in five-cent packages—how then shall we do? The objections to saying "one ounce each of the following seeds" would be, that they are not all the same price. An ounce of one may be 10 cts., and another may be only 5 cts., and still another may be 25 cts., and so on. Well, this makes the matter a little more complicated, but it can be arranged so as to economize space almost as well as the other packages. I learned it in the jewelry business. The traveling runners whose bread and butter depended on speed and expedition would make a correct invoice of 100 or more items on a small piece

of paper, and they would do it in a very few minutes in the way I am going to show you. Now then: Suppose you are buying ounces as follows. Start your letter this way:

Mail me one ounce each of the following seeds:

Eclipse beet,	⁵	Winningsstadt cabbage,	¹⁰	\$ 15
Self-blanching celery,	⁵⁰	Rawson's cucumber,	²⁵	75
Grand Rapids lettuce,	³⁵	Danvers onion,	¹⁵	50
Parsley,	⁵	Early Globe radish,	⁵	¹⁰
Lady-finger radish,				20
Mikado tomato,	²⁵			25
				\$1.85

Of course, half-pints, pints, and quarts and pecks, can be run together in the same way; also quarter-pounds and pounds. If you want to make your order neatly, I would take a catalogue and go through with a pencil, marking the amount you propose to order, on the margin, all the way from asparagus to turnip. When you have decided on every thing you want from a certain catalogue, then collect the 5c papers first. If there are only 9, you had better make it one more so as to get the 10 rate. After you have collected the papers, then collect the ounces. These two items alone will save a deal of time and paper; and instead of a long lot of additions, you will have simply a matter of multiplication. Do you ask how it is when you want *two ounces* or *three ounces*? Well, for two ounces you can make a separate item. For instance, "2 ounces Palmetto asparagus, at 10 cts. per ounce, 20 cts.;" but when it comes to 3 ounces, by all means order $\frac{1}{2}$ of a pound. If you will just look at it you will notice that in most seed catalogues 3 oz. will cost you as much, and oftentimes *more*, than $\frac{1}{2}$ pound. In fact, I am pained a great many times to see our clerks charge a customer more for 3 ounces of seeds than they would if the order had read $\frac{1}{2}$ pound. When I remonstrate, they reply, "Why, he wanted only 3 ounces of seeds, and he sent the exact price according to the catalogue." Now, I do not like that sort of logic at all. I never saw anybody yet who would complain because you sent him *more* seeds than he asked for; and when a man sends money enough to pay for $\frac{1}{2}$ pound of parsnip seed, he should have $\frac{1}{2}$ pound, even if his order does read 2 ounces. You will notice by the catalogue that parsnip seed is 5 cts. an ounce, or 40 cts. a pound; and you will notice, also, on the first page, that we sell $\frac{1}{2}$ lb. or $\frac{1}{2}$ peck at peck rates; 2 ounces cost 10 cts.; $\frac{1}{2}$ lb. costs 10 cts. Some of the friends still urge, that, when you give a man *just what he asks for*, that that is enough. My friends, if you want to build up a business, or if you want to glorify the Master, make it your business to give your patrons *more* than they ask for whenever such a chance offers. Why, it is just fun for me to give a man $\frac{1}{2}$ pound of seed when he sent for and expected only 2 ounces; and I should not wonder a bit if our present large business has been built up a good deal in just that way. The great world at large has had ample experience in sending away their money and getting *less* than the printed advertisements promised,

or getting less than they expected. But there is a great open field—a big unexplored region—for business and happiness and peace of mind in giving not only *all* you agree to give, but “good measure, pressed down.”



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I, and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

THE CALF AND THE BEES, IN TWO ACTS.

We have 13 hives. My teacher is cross. She lives near us. We have a little calf; and next summer,



when we let her out, she will go by the hives and tip one over, and they will sting her nearly to death.



I have sent you these pictures. I drew them myself.

LOUIE MICHAEL, age 12.

East Buffalo, N. Y., Feb. 7, 1889.

Your drawings, friend Louie, are very good. We reduced them, and made them almost fac-similes of yours. What is a fac-simile? Well, that means a “make-like,” or something just like the original.

BEES HAVE ALWAYS PAID WELL.

My father had 48 stands of bees, but he has sold them all but 4. We left these to our renter, on shares. When we put them in the cellar they were heavier than ever before. We have rented our

farm, and we are packing up to move; but we mean always to keep bees wherever we go, for they have paid us well. We have taken GLEANINGS for so long I can't remember when we didn't take it. We like it very well, and we are going to keep on taking it, for we should miss it very much.

Traer, Iowa, Feb. 21, 1889. J. L. PROVIN, age 14.

A CRIPPLED BOY WHO HELPS PAPA.

I am a little crippled boy, 12 years of age. My pa has 63 stands of bees. I help him tend them.

Newbern, Ia. DAVID C. MALONE.

BROTHERS' BEES.

My two brothers keep bees, and have 11 hives. They keep them in the cellar. They carried them in their arms. My grandfather says that the bees in the cellar ought to be kept at 42 degrees in the winter. In warm days they make a great noise. We had six in the spring. The wheat crop was poor last year.

ROBERT DAWSON.

East Dayton, Mich.

PAPA'S WINTERING-CELLAR.

□ Papa winters his bees in the cellar. He commenced last spring with 10 swarms, increased to 24, and got 600 lbs. of extracted honey and 100 lbs. of comb honey in 1-lb. sections. Three hundred and fifty pounds was from mammoth clover, and the rest was from buckwheat. The cellar that papa keeps his bees in is a place dug out under the house, about 3½ feet deep, not plastered. Nothing was done to it but to bank up the house well. But he winters successfully in it.

BERTHA BOARDMAN, age 9.

Weston, O., Feb. 22, 1889.

HAULING BEES TWELVE MILES IN A TWO-HORSE WAGON.

My pa has 14 hives of bees, and I have one. The 14th of last May the levee broke, and on the night of the 14th pa hauled our bees 12 miles without breaking any comb. The 11th of August he brought them and 15 of grandpa's back to the bottom, without breaking or damaging the comb. To prepare them for hauling he nailed cleats over the entrances, then he set them in the wagon and packed clover hay all around them tight. We did not have a very big honey-flow last year. We got about 360 lbs. for home use. They have from 60 to 70 lbs. to the colony now. We are wintering on summer stands. They are all right so far. We use A. I. Root's Simplicity hives. I am an A B C scholar, and read GLEANINGS.

ABBIE HOSKIN, age 14.

Louisiana, Mo., Feb. 19, 1889.

HOW PAPA FEEDS BEES.

I am a little boy seven years old. I was paralyzed three years ago, and have never gotten over it entirely. I have a pony and a little saddle. I can go to town and get the mail, or any little thing that papa or mamma wants. We live a mile from town. My papa feeds bees two ways. One way he takes a little square piece of board and cuts small grooves in it, two of them crosswise, from corner to corner, one from top to bottom, and one from side to side. Then he takes a goblet, with the bottom broken off; fills it with sugar syrup; puts the board on it, and turns it bottom upward and sets it in the hive. The bees take up the syrup as it runs out in those grooves. But he likes the other way best. It is

this: Take out the empty combs; pour syrup over them; hang them back in the hive. Papa has 42 colonies. He has extracted once, and they are full again. He sells honey at 15 cents a pound, home market. We got some strong honey, described by S. G. Christol, page 851, from the white-top milk weed. I think the strong or hot part soon evaporates. CLAY DILLERAY.

Milford, Tex.

The grooved-board feeder is illustrated and described under "Water," in the A B C of Bee Culture.

THROWING MUD, AND SHOOTING, TO BRING DOWN A SWARM.

Last summer papa got 100 pounds of honey from 12 colonies, and my brother-in-law got 60 pounds from only 2 colonies. Papa caught two swarms when he was extracting. He heard a lot of bees buzzing, and he looked up and saw a swarm. We threw mud at it, but it would not come down, and then papa sent me home after the gun. He fired both barrels at it, and I kept throwing mud, and at last it settled on a pile of brush in a ditch. Papa put a hive there, and at evening they went in it. My brother came down, and he, papa, and I went down to the hive and carried it to the apiary. We caught the other the same way.

DANIEL W. HIGGINS, JR.

South River, Md., Feb. 22, 1889.

Well, well! was it the mud-slinging or the shooting that finally induced the swarm to alight, or did the swarm settle when it got a good ready, regardless of either the mud or the shot? We suspect they got a good ready.

EXTRACTED SELLING HIGHER THAN COMB HONEY; HOW PA FASTENS FOUNDATION INTO WIRED FRAMES.

My pa takes GLEANINGS, and we are glad when it comes. I have a little brother, six years old. We go to school every day. My pa has 85 stands of bees, packed in clover chaff, outdoors. Pa says that he is going to extract more honey next summer than he did, as it sells better than comb honey. I help pa extract honey. I have been stung only two or three times in my life. Charley is afraid of the bees.

Pa fastens the brood foundation in the brood-frames with the heat of a common lamp. He sets the lamp on the table and lays foundation in the brood-frames and holds the frame over the lamp with his left hand so as to heat the tin wire and the foundation. Then he passes the finger of his right hand over the wire on top of the foundation so as to sink the wire into the foundation; and when it is finished it looks as if the wire were sewed through the foundation. We can fasten the foundation in cold weather as well as in warm. We did not get much honey last year, as it was too dry.

DORA KUNZ, age 8.

Linkville, Ind., Feb. 23, 1889.

You probably do nice work in putting in the foundation; but how your papa can heat the wire so that it will sink into the wax, without spoiling the foundation by too much heat, we do not quite understand. Is the foundation itself left as perfect after putting into the frame as before? Please tell us more about it in your next letter.

MYSELF AND MY NEIGHBORS.

CONTINUED FROM ISSUE OF MAR. 1.

Cast me not away from thy presence; and take not thy Holy Spirit from me.—PSALM 51: 11.

DURING the sermon that followed the Sunday-school, this peace and joy I have told you of still poured into my soul. The closing thought of the sermon was something like this:

Some people seem to imagine that it is not in their power to turn to Christ, any more than it would be in the power of an individual who is lost in Mammoth Cave to find his way out. If no guide were near to direct his steps, his case would indeed be hopeless; but Christ Jesus stands ever ready to lead every willing soul from darkness to light. In fact, he has said, "I am the light of the world. He that followeth me shall not walk in darkness, but shall have the light of life."

Dear friends, I had unconsciously, as it were, reached the top of one mountain. I want to use here one verse and chorus of a familiar little hymn that expressed my state of mind at the close of that sermon:

The Savior comes and walks with me,
And sweet communion here have we;
He gently leads me by his hand,
For this is heaven's border land.

O Beulah land, sweet Beulah land,
As on the highest mount I stand,
I look away across the sea
Where mansions are prepared for me,
And view the shining glory shore,
My heav'n, my home for ever more.

Last Sabbath evening I listened to a minister who made the broad declaration that all humanity are seeking happiness. I thought at the time that his statement was open to a little question; but perhaps he was pretty nearly right. Well, if this is true, dear friends, suppose we consider for a moment human happiness. Many of you besides myself have discovered that it comes oftenest when we are not seeking it. It was a good deal against my inclination that I had decided to wait until the Sabbath was passed before resuming my travels. My reward had come unexpectedly. Perhaps part of it came because I refused to go with the boys who wanted to show me the natural attractions of the little town, but stayed inside of my room, and studied God's holy word all through the bright sunshiny morning. Jesus tells us, in that beautiful parable, that those who had been all their lives busy ministering to him were not aware of it at all. When he called them to their reward they replied, "Lord, when saw we thee a hungered or thirsty, and gave thee drink?" etc. Instead of *boasting* of what they had done, they had not thought it worth mentioning. A great blessing had come to me, simply because I was doing my duty, without any thought of reward. But I had been vouchsafed a taste of the waters of life that I presume I shall never forget.

Whosoever drinketh of the water that I shall give him shall never thirst; but the water that I shall give him shall be in him a well of water springing up into everlasting life.—JOHN 4: 14.

And I here wish to leave my testimony, to

the effect that there is no enjoyment nor happiness in this world to be compared with it. Such seasons as these, however, are usually of brief duration; and while we are yet human, perhaps it will always be so. There is quite a temptation to skip the remainder of the events of that Sabbath day; but perhaps it might be profitable to consider how I came down from the mountain, as well as to relate how I unconsciously got up.

As the service closed, I felt sorry to know there were no more meetings till evening. At dinner I compared notes with the boys who had been seeking pleasure in the ways I have already mentioned. What should be done during the afternoon? I read awhile; and then feeling the need of exercise (or at least I thought I did) I decided to walk out a little by myself. The suggestion came into my mind, that I not only needed some of the

mountain air, for which the place is widely celebrated, but that, if I could find one of those springs at some quiet place there would be no harm to take a drink of the famed medicinal waters. Of course, I could wait until the morrow; but if I expected to get any marked benefit from the celebrated waters, it behooved me to get a drink as soon as possible, that I might be able to take many drinks before I was called upon to leave. Even in my boyhood I had always a great fondness for ginger pop, and mineral waters that owed their pungency to imprisoned carbonic acid. The pop of the cork and the foaming in the glass always had a certain fascination, and I must confess that the taste of these foaming drinks has always been more or less agreeable. I had been told that the water of Manitou Springs had a fashion of foaming and sparkling as it comes out of the ground—a foaming, sparkling draught from nature's own laboratory. I did not know exactly where the springs were located, but I thought there could be no harm in walking out along the railroad, all by myself, and so I started. The walk was very pleasant indeed—or, rather, it would have been pleasant had it been some other day than Sunday, for my conscience was making me feel a little uneasy. When perhaps a quarter of a mile from my boarding-place the

track ran into a tunnel. Conscience said it was time to go back; but curiosity pointed to the strange rocks which had been cut and chiseled in making an opening. After I got in a little piece I saw daylight from the other side, and I thought I would just look through. When I did so, I saw another tunnel, more wonderful still. Of course, I went through the last tunnel, and, sure enough, right before me was one of those wonderful effervescing springs. Some benevolent (?) individual had built a pretty little summer-house over it.

Below is a picture of the spring as it met my view. In the distance is the white summit of Pike's Peak, where I had seen the snow blowing in the morning. The picture, however, is not from a photograph, and does not at all do justice to the mountains.

The summer-house built over the spring is very lifelike.

Some steps ran down to the sparkling spring, and a tin cup hung invitingly by a chain. Just then I noticed that

not only young men but women

also were passing to and

fro, evidently out that

Sunday afternoon seeking

happiness and recreation,

or some sort of excitement.

I thought I would take

just one drink, and then go

back quickly to my lodging-

place. When almost to the

brink of the spring I discovered

in a room, close by, a gathering

of ungodly people; and from the looks of the

bottles and decanters, I judged the place was for the

traffic in intoxicating liquors. Should I turn back, or go ahead and

taste the waters? Since I had got so far, I decided to take just a taste; but I began to feel very bad and uncomfortable. It seemed as if they were all looking at me, and saying, "There is that man out here this Sunday afternoon, who talked so well in the Sabbath-school. After all his talk, he has as much curiosity to see things, and just as much of a desire for a little excitement and stir, even if it is Sunday, as the rest of us."

I tasted the water, and dropped the cup hurriedly. Somebody has said, that "stolen waters are sweet." My young friends, don't you believe it. It has never been true in my experience. I noticed the sparkle of the gas as it came bubbling up from the water from the bottom of the spring,



THE UTE SPRING, MANITOU, COLORADO.

and the taste had a decided snap, like pungent soda; but I did not care very much for it then. I decided it was not worth the cost on that Sabbath afternoon. I didn't think at the time (but I did afterward) of the text, "Whosoever drinketh of the water that I shall give him, shall never thirst." Well, what was to hinder my retracing my steps as quickly as I could? Nothing; only, as I started to go back, something suggested (very likely it was Satan) that, if I climbed that big hill to regain the railroad track, I should be all in a sweat, and one ought not to look sweaty with exercise on Sunday. Before me was a smooth traveled road that led back to my hotel, without the necessity of climbing the hill to reach the track. It is true, this traveled road led through the business part of town; but I did not think so much about that just then. As I passed along the road I saw more and more people, who, it seemed, eyed me as did the others. Most of them were shabbily dressed. Some were smoking and swearing, and I had a sort of feeling that my presence on that street was something of an indirect encouragement to them to think it was right and proper to be seen on the streets on the Sabbath day. Pretty soon a path turned off into a quiet little grove, or ravine, beside the brook. This path, so far as I could see, went along almost parallel with the public road. "There," thought I, "I can take this path and thereby escape the crowd and their questioning gaze, and it will no doubt lead me just as directly, and may be *more so*, to my hotel." Do you remember how Christian, in Pilgrim's Progress, started off a little from the straight and narrow path, and, without actually knowing it, got further away? Well, it was so in my case. The path led down by some more springs, and, for some reason or other, I thought I would just taste the water of these springs—it wouldn't take more than a moment—and I wanted to see if it were all alike. Was it really so, that these were not as good as the first ones, or was it my guilty conscience that made it seem so? I met more untidy people, and pretty soon I found a wire fence intercepting my path. The owner of the ground, evidently not liking so many tramping over his lands, had *recently* made the fence. As soon as I saw it some thing said:

"Now, old fellow, you will be sure to tear your nice clothes before you get over that wire fence. You know you always have some mishap when you go off so on Sunday; and you may *depend on it*, you won't escape this time." I thought of the morning, and I felt feverish and nervous. Several times I had tried to walk slowly and sedately; but before I knew it I was rushing ahead again very much as A. I. Root does on week days. I would have turned back and retraced the path until I came to the highway again, but I was getting nervously impatient. How I did long for the protecting walls of the Mountain View House, or even to be so near its doors that no one would think I was guilty of strolling about on the Sabbath. I decided, that by being real careful, I could get over that wire fence, and not have my

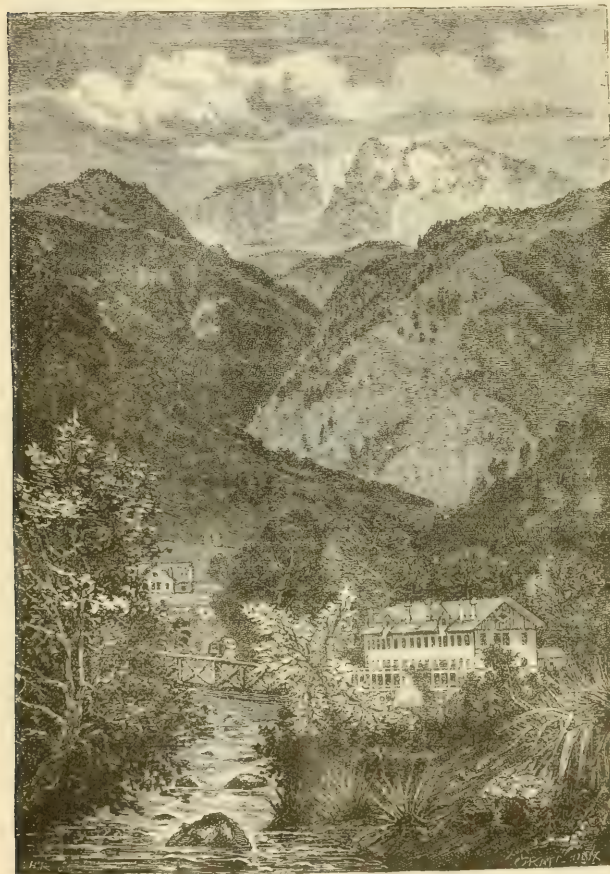
clothes torn. I pressed down the top wire, carefully gathered up the coat-tails of my Sunday overcoat, and succeeded in stepping over the fence without a rag of my clothing touching a single barb. Then I decided to walk slowly and sedately the rest of the way, and that nothing should entice me to wander about any more during the afternoon. After I had gone a few rods I happened to look down at my polished boots. They were newly blacked, expressly for church and Sunday-school. Something caught my eye that troubled me at once. I reassured myself, however, by saying mentally it was only a *wide blade of grass* that had fallen across my boot. Nervously I undertook to brush off that "blade of grass." As I found it would not brush off, the sweat began to start on my forehead. One of my nice new boots (a pair that just cost \$7.00) was actually cut from ankle to toe, and was gapping open wide, showing my blue stocking underneath. I have heard that pickpockets sometimes carry a lance so sharp that it will cut open a pocket, without the owner being aware of it. Had a pickpocket suspected I carried money in my boot, I should have thought it *was* his work. How was it possible that that great cut was made without my knowing it? Oh, yes! When I lifted my last foot over that wire fence, I do remember a peculiar singing "zee-e-e-p," and that sound was made by one of those keen barbs as it cut my boot. I was near to the pastor's house. Perhaps they were watching me out of the window. May be some of them would come out to the door just as I came by, and find me sweaty, dusty, flushed, and uncomfortable, with a great gash across my foot. Satan whispered to turn around and go and get a shoemaker to sew it up before church time. Just then, however, I thought I could see where glimpses of Satan's cloven foot had been visible all the afternoon, and I said, very decidedly, "Get thee behind me, Satan." The minister's folks *did not* come out, and I was enabled to get safely to my tidy little room in the hotel; and when there I knelt by my bed and asked the kind Savior to forgive me for my folly of the afternoon. And that is the way, dear friends, I slipped away down in the "Valley of Humiliation" from that high pinnacle where it had been my pleasure to stand but a few hours before.

I had been asked by the pastor to take part in the young people's Endeavor Society at half-past six, before preaching services, and I was on hand, I believe, before anybody else. We have often been enjoined to "put our best foot forward." So far as that was concerned, however, I was trying to keep my best foot in the background, you may be sure. When the proper time came I gave in my testimony. But I was somewhat like a crippled soldier. The spirit that was with me in the forenoon was not gone, but it was a good deal dimmed. However, I went to bed feeling happy that the Sabbath day as a whole had not been so very badly spent.

I found that my train did not leave till 2:35 in the afternoon, on Monday, so you may be sure I was up bright and early, ready

to make the best of my time before leaving. On questioning in regard to the liveries, and what I could get a rig for, the landlord suggested, that, if I were used to walking, I might make the whole trip on foot, and thus save quite a little money. The two caves and the Rainbow Falls he thought I could make by noon, taking in the springs on the way, and the Garden of the Gods might be visited before the train left if I were not too tired. Can you imagine with what a light heart I started forth after my early breakfast?

The accompanying picture gives you another glimpse of Manitou. The building in



A GLIMPSE OF MANITOU.

the foreground is one of the fine large hotels. A pretty fountain plays in front of the piazza, on the lawn. A rustic bridge across the stream that comes from Rainbow Falls, and the caves I am about to describe to you, are in the mountain off to the right. Pike's Peak looms up in the background; in fact, Pike's Peak seems to be always before you, and every glimpse seemed to say to me that it could not be very far away.

I was down through the little village, and had a drink from the springs, almost before anybody else was stirring. The waters were much pleasanter than they

were the day before, but I was not very thirsty just then. Then off I went, as happy as a schoolboy when school is out, up the mountain side, for the Cave of the Winds. The road very soon began twisting amid the rocky cliffs, one way and then another, until one could hardly see many rods ahead. Then the cliffs towered away up toward the sky, in some cases leaning clear over the road, until it seemed as if we were in a land of giants. It was up-hill work; but what cared I, with the love of God in my heart? It seemed that morning just a *pleasure to climb*; and before the sun was fairly up I had made the two miles up the mountain-side, and

stood at the foot of the cliff whereon was found the Cave of the Winds. Now, it is a little funny, but this cave was discovered only three or four years ago by a band of Sunday-school boys. To keep them busy, and perhaps out of mischief, the Congregational pastor had organized what he called an exploring band; and the boys composing this band, when they had the leisure, devoted their time to exploring the mountains about Manitou. As I stood and gazed upward I saw in the side of a steep cliff, perhaps 500 feet above me, a fissure in the rocks. This fissure was a sort of crack where the mountain had split in two, as it were, leaving a space of perhaps a yard wide. Now, the rock was rough enough so the boys by reaching from one side to the other had climbed up in this fissure for a hundred feet or more; and away back, out of the sight of human eyes, either from below or above, they found the cave. I did not rest long before I commenced climbing the steps. Then a sort of sheep-path led up along quite a distance further. Then some rude stairs took me to the foot of the fissure. Wooden timbers were put across the fissure, and stairways took us up to the opening. See cut on next page. I knew before I started out, however, that the Cave of the Winds was closed at this season of the year; so after resting a while, and

trying to imagine how the boys felt when they reached this spot, by means of other ladders I ascended clear to the top of the opening, and stood nearly on the summit of the mountain. A good many people get dizzy when up here, and I sat down and meditated a while before I took what seemed to be really a perilous passage on the very edge of the cliffs. Still another narrow path wound up and up, until I reached the very summit of the mountain. The sun was just rising, and a refreshing breeze seemed very grateful after so much climbing. By my side was a little pyramid of stones. This

pyramid was the work of tourists, each one contributing a stone to it. Although I was panting for breath, I selected one also, and placed it near the top. A good many had left business cards, and some had scratched their names and addresses on the stones. I looked off toward the village, and there in plain sight was my hotel, Mountain View; but, oh how small and insignificant it looked! The landlord had, before I started, pointed out to me the Cave of the Winds; but as I looked from the hotel, all I could see was a few rough rocks that seemed not larger than a common-sized house. But

other cavern. Before I could get in, however, I had to go still further down the mountain to where the guide lived. He informed me they did not open till eight o'clock, and, sure enough, it was only *just* eight. The points the landlord said I could make by *noon*, I had already made, except going through the cave. Come to compare notes, the guide had been an Ohio boy, and, still further, he was brought up in the neighboring town of Akron. We were old friends in short meter. While he was lighting his lamps, and getting ready to go into the cave, I sat down on the steps, thinking I

had better economize my strength, although I didn't feel tired a bit. My eye glanced across between a couple of mountains, and there was Pike's Peak again, with the snow rolling and blowing.

"Mr. Snyder, they tell me it is *thirteen miles* to the top of that mountain over there. Why, it seems as if I could skip to the top of it in a little more than half an hour."

"Well, I think I can teach you a lesson if you care to look through our big telescope. It cost us about \$250, and therefore we are obliged to charge ten cents for the privilege of looking."

"Cheap enough, my friend. I want to see every thing you have that is worth seeing, and here is a five-dollar bill to cover expenses. While you are making your change I will look at Pike's Peak."

The instrument was very soon adjusted by his practiced hands; but before I put my eye to the glass he spoke:

"Mr. Root, I want you to tell me first if you can see any thing like a house on top of Pike's Peak, with the naked eye."

"Why, I think I could see a house if there were one, but there is surely nothing of the sort. It is just a scene of snow and blank desolation."

As I replied, however, I put my eye to the glass, and, lo and behold! There was quite a good-sized stone house on the peak—some outbuildings around it, a flag floating from the highest part of the house, and smoke

coming out of the chimney, while the blowing snow made one fairly shiver as he looked through the glass. Of course, I uttered an exclamation of surprise, and then took another look with my naked eye. After the telescope had shown me what there was to be seen, I readily fixed my eye on a mere speck that I decided must be the house. And all at once the old mountain shoved back fully ten miles. You see, when my eye had learned to pick on something with *known dimensions*, things then assumed their proper size and distance,



ENTRANCE TO THE CAVE OF THE WINDS.

when I came to stand by them, they loomed up nearly a quarter of a mile high. Now, this is one reason why we can not comprehend the height of a mountain. There are no familiar objects with which to compare things, and our eyes deceive us. More of this anon.

After being satisfied with my view I started on the downward path, to take in the Manitou Grand Cavern. Going down hill is comparatively easy work. (Did you ever know it, boys?) It was not very long before I stood before the locked door of the

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

THE DOVETAILED HIVE, AGAIN.

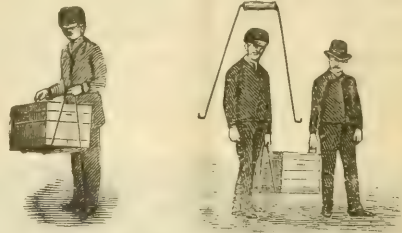
THE new hive seems to be taking well, especially the dovetailed feature of it. The only serious criticism that has been offered is the dispensing of the bee-space *above* the brood-frames, in the hive, and, instead, putting it below. As many good friends, prominently among the number Mr. Heddon, thought we were making a mistake, we called a council comprising, as usual, A. I. R., the foreman, Mr. Calvert, and your humble servant. After discussing the matter in all its bearings, we saw our way, without any additional expense, to put the bee-space *above* the frames, and, of course, make the honey-board bee-spaced on one side only. To provide for a bee-space below the frames, we make what might be called a sunk or bee-spaced bottom-board, one side open for an entrance. This bottom-board is simply a cover, as shown in the engraving on page 189, with the projecting shoulder of one of the end cleats cut down so as to be made level with the board itself for an entrance. A $\frac{3}{4}$ -inch strip is nailed on to close up the two sides. As a result of this change, the cover-board and bottom-board are exactly alike, except that they are cleated a little differently, and the bottom-board can be used as a cover, although the cover can not be used to answer the purpose of a bottom.

Fortunately it was not too late to change the bee-space from the bottom of the frames to the top. All who have sent for the Dovetailed hive will receive them with the bee-space above the frames, and the bottom-boards bee-spaced as before explained. Perhaps it may seem a little strange that we should think of abolishing the bee-space in the first place. We had not then discovered a feasible plan whereby the space could be put above the frames, without an additional expense. In constructing this hive, the one feature of economy has been kept constantly in view, and we believe we have succeeded, as many letters at hand testify.

HIVE-LIFTERS, AND CARRYING HIVES.

Some time ago I stated that we would give something more on the matter of carrying hives. In compliance with our request in GLEANINGS, quite a number sent in descriptions of the devices which they were using for carrying hives; but scarcely any of them seemed practicable for carrying the *Simplicities* or any other than some particular hive. They either cost too much or else were complicated. Mr. J. H. Griffith, of Kingsville, Ontario, Can., and G. L. Jones, * of Grand Ridge, Ill., suggested a method of lifting hives, which I have modified somewhat. The engravings above explain the whole thing. It is simply a wire bail bent in the form shown in the engraving at the right, with hooks formed at the ends of the wires. For convenience in handling, a neat

bail handle is formed into the bend. It is very simple, and quickly made, and a pair of them can be made at a cost not to exceed 25 cents. You will notice that they will pick up not only the *Simplicity* hive itself, but the bottom-board also. The operation of attachment is very simple; push



WIRE BAIL FOR CARRYING HIVES.

the hooks into the soil, close to one side of the bottom, catch the beveled edge of the rim of the bottom-board, and the wire bail is caught. The other bail is attached in a similar manner. The apiarist can, either with or without an assistant, now lift up the hive. If the colony is a heavy one, and there are many to be moved, it would be advisable, of course, to employ an assistant, as shown in the right in the engraving above. If, on the contrary, the hive is not a very heavy one, he can, without very much difficulty, handle it as shown at the left. Perhaps it may be urged that it is almost as handy to put the fingers under the bottom-board; but if you consider a moment, you will see that it is not a very easy task to lift a burden when the body is stooped clear over in an awkward position. One can handle a much greater weight in an upright or nearly upright position, as shown in either of the figures above, than he can when the body is inclined horizontally. But the bail is a greater convenience when there are two to carry the hives, because then the palms of the hands are not twisted out of their natural position. The two figures were taken from a photograph.

To test these hive-carriers, Mr. Spafford and I attached them successively to several chaff hives, which, you are aware, are considerably heavier than the ordinary *Simplicity*. We found we could lift them with ease, and carry them to any place desired.

As they can be used on any hive with tight or loose bottom-board, I think they may prove a great help. The time is now approaching when it will be necessary to carry the bees out of the cellar; and to accommodate those who do not care to make them, we will furnish them for 25 cents per pair, or 10 cents extra when sent by mail.

P. S.—Since writing the above I discover, quite by accident, that one Wm. K. Deisher, of Kutztown, Pa., illustrated and described something very similar in GLEANINGS for 1883, page 607. Mr. D.'s implement was made of $\frac{3}{4}$ -inch iron, rather heavier than necessary. That described above is made of ordinary bail wire, such as is used for pails. Mr. K. says it is very handy, and that two boys can carry even a chaff hive about with ease.

* Mr. Jones, in a letter, says he carried into the cellar over 100 hives with such a device.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAR. 15, 1889.

Wherefore do ye spend money for that which is not bread,
and your labor for that which satisfieth not? ISA. 55:2.

THE "SCIENTIFIC LEGERDEMAIN" STORY AGAIN.

The "scientific legerdemain" story, see page 81, now comes to us in the columns of the *Register*, Troy, Pa., and they copy it from a paper called the *Washington Star*. Will those of our readers who are acquainted with either of the papers please call their attention to our article alluded to above?

DIMENSIONS OF LANGSTROTH FRAMES—SEE P. 69.

Friend Alley asks why I should send to Mr. Langstroth for dimensions of frame to the L. hive, when I already had the dimensions in Langstroth's book. It was not only the *dimensions* I asked for; but I asked friend Langstroth, while he was visiting Samuel Wagner, something like 25 years ago, to send me a sample frame by express, just as he would have the frame. I wanted to know the dimensions of the different pieces, the way in which they were put together, the kind of nails to be used, and all about it; and I wanted one made according to his latest ideas in regard to the matter, for the frame at that time had been already a good many years before the public.

THE FRUIT-PRESS AND VEGETABLE-STRAINER AS A HONEY-EXTRACTOR.

OH dear me! I entirely forgot, in my description on page 130, to mention that the above machine would answer for pressing honey out of the comb. In transferring from old box hives, if you have bits of comb containing honey just squeeze the honey out with the press, then put the wax in a bag by itself, to be squeezed after boiling. We are indebted to our good friend Thomas B. Blow, of England, for the suggestion. In fact, he calls it, in his price list, the "*honey-squeezer*," and he says it is a most useful article for the purpose. By the way, friend Blow sends out a very complete and comprehensive catalogue, 65 pages, of bee-keepers' supplies.

GLEANINGS MATTER, AND SOMETHING FOR THOSE WHOSE ARTICLES HAVEN'T BEEN PRINTED.

BEFORE us is a great heap of GLEANINGS matter, most of it excellent, and, as a matter of course, acceptable, but it hasn't appeared in GLEANINGS yet. Why? because we haven't room, although our journal is now enlarged to 44 pages. Many of the communications show evidence of painstaking care, but we fear only a small portion of them can be used. We are going to try to use the best part of them, however. If, therefore, you see the introduction and the tail end of your carefully worded and well-connected communication chopped off, don't feel hurt. Flowery introductions and appropriate "windings up" are not acceptable. We want

no apology for "inflicting" the readers of GLEANINGS with another article, but we want you to commence saying what you have to say at once. Complaints are already coming in because we are using the "other fellow's" articles, not so meritorious as some we haven't used. Please remember, it is our *privilege* to be the judge, and that we do fairly well is evidenced by our large and increasing subscription list. Please remember, too, that the circumstances are such that the rule of the "survival of the fittest" can not always be applied, although we try to use the best.

THE SILO AND ENSILAGE, BY PROF. COOK.

THE above is the title of a little book of 31 pages of reading-matter, written in Prof. Cook's happiest vein; in fact, while you read, those of you who have heard him at our institutes can imagine you hear the sound of his voice, and see the enthusiasm shining from his face. I have long been wondering why we did not have a book on ensilage, and one written by somebody who did not have the machinery for sale. Prof. Cook recommends the silo because he thinks it is going to be a great boon for farmers; and, so far as I can learn, I think he is right. The only criticism I have to make is the one I made in regard to Dr. Miller's book—a lack of engravings. I confess that I do not even now understand how the foundation of the silo is made, and I have read it several times over, while a simple rude drawing or diagram would make it plain to a busy laboring man, without taking much time or mental effort. I sincerely hope we may have a revised edition soon, with some pictures. The price of the book is 25 cts., and the size of the pages is 3¼ x 5¼. If more convenient you can order from us instead of from the author.

AIR-SLACKED LIME, IN CONNECTION WITH MANURE, AS A FERTILIZER.

UNTIL last season we had always had more or less trouble with club foot in our cabbages, and I began to feel considerably worried about it. Peter Henderson tells us, however, in his book, "*Gardening for Profit*," that lime or bone dust has proven to be a sure remedy with him. Now, inasmuch as we had seen club foot on some little plants in our plant-beds over the "new agriculture," we decided to give these beds a good dose of lime. Well, one day, when I was not around, the boys decided that they could kill two birds with one stone by raking in the guano and lime at one operation. When they came to mix the two together, however, with a sieve, their olfactories were greeted with fumes of ammonia that were almost like a dose from a smelling-bottle. However, they sifted the mixture over the ground and raked it in, and said nothing about it. When those cabbage-plants came up they had such wonderful vigor, and such a rich dark green, that I made quite a stir about it, and asked for further particulars as to the amount of guano, and how they did it. Then came out the above story. We tried it again with like results. I communicated the matter to W. J. Green, of our Experiment Station, Columbus, and he advised me not to put it in print until it had been more thoroughly tested. He succeeded in the same way, by mixing pulverized and sifted poultry manure with lime instead of guano. No club foot has ever appeared in our plant-beds since we adopted the above. But this is not all. Last fall, our neighbor, who deals in lime for plasterers' use, informed me

that he had forty or fifty barrels that had become so much air-slacked by the damp weather that he would sell it out to me cheap. By the aid of a manure-spreader we covered our richly manured lots with the lime until it looked white. We immediately harrowed it in and put on cabbages. The result has been good every time. The lime seems to have a remarkable effect in setting free the ammonia from stable or other manure so that it is available to the plants. But my impression is, that lime alone, without any manure, amounts to but little as a fertilizer. Now, besides liberating the ammonia it has another office. Our heavily manured soil is full of angle-worms; in fact, I have been troubled because it seemed to me they must owe their fatness and great size to the rich manure I have been buying around town. Well, in the fall we gave several plots a heavy dressing with slacked lime, and then plowed it into lands with deep dead-furrows between, to carry off the winter rains, so we could work it quickly in the spring. Well, after the first good rain, great fat angle-worms were found in those dead-furrows, dead, in such quantities that they could have been gathered up by the handfuls. The lime killed them. They crawled out in the dead-furrows; and the lime water, as it washed down, fixed them in good shape to give off their ammonia. This matter is already partly understood, as I have already noticed by the agricultural papers; but I am quite certain that it is not fully understood and appreciated in plant-beds and in greenhouses.

OBITUARY.

WE are pained to announce that Mr. Wm. H. Shane, who has been, perhaps, the most prominent raiser of comb honey in Medina Co., died on the 7th inst. Shortly after I succeeded in securing such large crops of honey by the use of the extractor, as mentioned in the introduction to the A B C book, Mr. Shane became interested in bees, visited me repeatedly, and asked me so many questions that I began to think that, if he remembered all my answers, he would know all I knew, any way. He was an earnest student, and soon became master of almost all that was known on the subject of bees. From the first he secured profitable crops of honey. Last season, and the season before, were no exceptions. Mr. Shane had a nice crop of honey, put up in beautiful shape, when almost every other bee-keeper in the land failed. While we lament his death, we rejoice to know that, like friend Raitt, while he loved his bees he loved his Savior more; and when the call came he was ready to go.

SPECIAL NOTICES.

We now have Dadant's Langstroth Revised, and can send them out by return mail. Price \$2.00. By freight or express, 15 cts. less.

160 SIMPLICITY ALL-WOOD BROOD-FRAMES FOR \$1.75, AT HIGHLAND MILLS, ORANGE CO., NEW YORK.

Here is a chance for some one in that vicinity. Who speaks first?

POULTRY NETTING AND FENCING.

We call the attention of our readers to our advertisement of netting and fencing, on the inside cover page of this number. Notice that prices are still lower than last year. We shall be pleased to mail a special 16-page netting and fencing catalogue to any one requesting it.

REDUCTION IN THE PRICE OF THE FIVE-PRONGED GARDEN-WEEDER.

The above implement is now furnished for 10 cents instead of 15, as formerly. If wanted by mail, add 7 cents for postage and packing. These are retained, to prevent rusting, and we think it pays to have half a dozen of them hung up in convenient places about our grounds.

CHOICE COMB HONEY AT 18 CTS. PER LB.

We have about 1000 lbs. of very choice comb honey in 4x4x4 sections, 7 to foot, put up 28 sections in a case, net weight of which is about 23 lbs. We offer it in single-case lots for 19 cts. per lb.; 5-case lots or more, 18 cts. per lb. It was produced by our neighbor W. H. Shane, who has so recently passed to his eternal reward.

12-INCH FDN. MILL FOR SALE IN CANADA.

We have at Cheltenham, Ont., one of our late 12-inch fdn. mills, sent from here a year ago, and has been used almost none. It is just as good as when new. We will sell it for \$30.00. The duty on mills to Canada is 30%, so you will make a saving of \$9.00 by buying this machine, besides the transportation charges from here there. Who will be the first to speak for it?

DISCOUNTS FOR GARDEN SEEDS, POTATOES, ETC.

As we are beginning now to sell a good many more seeds by ounces, pounds, pecks, and bushels, than formerly, we have decided to make the following discounts on large orders. But please bear in mind that this does not apply to five-cent packages of seeds. For all else in our seed catalogue we will allow a discount of 5 per cent on all orders of \$5.00 or over; 10 per cent on all orders of \$10.00 or over; 15 for 15 or over; 20 for 20, and so on up to 25 per cent off for \$25.00 worth or any larger quantity. In consequence of the great plenty of nice potatoes in our vicinity at the present time, we will, from this date on, allow a discount of 5 cts. per peck, or 25 cts. per bushel from prices given in our seed catalogue.

Later.—Since the above was written we have purchased two large lots of Burbank and Beauty of Hebron potatoes, suitable for seed, which we offer at 50 cts. per single bushel, or only 40 cts. in lots of five bushels or more.

OUR MARCH 1ST CATALOGUE, 68TH EDITION.

This has been increased in size to 44 pages by the addition of a rose-colored cover, thus giving room for more matter, and adding to its appearance a little more attractiveness. A careful observer will notice a great many changes over former editions, especially in the matter of hives. There are very few changes in prices, except in the Counter Store department, to which are also added a great many new cuts. Three pages relating to hives are entirely re-written, also the matter relating to sections; likewise that relating to circular saws, hive and section machinery. Our \$25.00 saw-table is advanced to \$30.00. Thin flat-bottom fdn. is reduced to 55 cts. per lb., and where it is taken in 25-lb. boxes the price is only 50 cts., and we furnish Vandusen's make, in sheets 16½ x 28, or 17 x 30. We shall be pleased to mail this catalogue to any of our readers requesting it; and if you have any bee-keeping friends and neighbors we will mail them a copy also, if you add to your request their name and address.

CLEVELAND'S ALASKA PEA.

I thought I had got through for the season mentioning all new things in the way of garden-seeds; but a notice of the Alaska pea, by our good friend A. C. Kendel, has reminded me of something:

The A. B. Cleveland Co., CLEVELAND, OHIO, June 26.
Gentlemen:—In reply to yours of the 23d, we would say the Alaska peas were given to a number of our most careful growers, and the reports are as follows: Planted at the same time and on equal quality of soil, the Alaskas in every instance were from two to four days earlier than any other variety, and were as good as any in quality. We predict for the Alaska a leading place among the first early peas.

A. C. KENDEL.

See also the following from the originator of the Chartier radish:

ALLEGHENY CITY, PA.

I made two personal trials of Alaska peas this season—early and a late sowing, and in both cases with similar results. In my trials I planted them with Landreth's Extra Early, First and Best, and Rural New Yorkers. In habit I find them of about the same height as the very extra-early varieties, but more slender in the stalks, and lighter green in foliage. They are in bloom nearly a week earlier than the others, and MA-

TURED FOUR DAYS SOONER. Crop all came in at two days' picking. Slightly more prolific than the others; quality very good. W. C. BECKERT.

In addition to the above we raised the finest patch of peas last year by sowing the Alaskas, that I ever saw or ever raised anywhere. They ripened up so nearly at one time that we cleared the ground at once and put cabbages in their place; in fact, the crop matured so suddenly—so much all at one time—that we were obliged to take it in wagonloads to towns to dispose of it. In fact, we had bad luck with peas, just about as we had bad luck with early potatoes. Did I never tell you about our bad luck with potatoes? Well, we expected 25 bushels from a little patch, and got over 100. We had so many Alaska peas that we could not sell them in Medina, and we could not sell them in the country towns, and so they went to seed, and we have now several bags full of beautiful seed—no bugs nor any thing of the sort. The pods are remarkable for their fine dark-green color, and this color holds longer after they have been picked than any other pea we have ever tried. Price, per packet, 5 cts.; per pint, 10 cts.; per peck, \$1.50; per bushel, \$5.00. If wanted by mail, add 8 cts. per pint for postage.

PRICE LISTS RECEIVED.

C. D. Duvall, Spencerville, Md., sends us a 12 page list of bees, queens, poultry, potatoes, and buckwheat.

G. L. Tinker, New Philadelphia, Ohio, sends us his price list of hives, sections, bees, etc.

C. M. Dixon, Parrish, Ill., sends out an 8-page list of poultry and bee supplies.

J. T. Wilson, Little Hickman, Ky., mails us his list of Italian queens.

S. S. Jordan, Hiramsburg, O., sends us an 8-page list of bees, poultry, and ferrets.

W. H. Bright, Mazeppa, Minn., sends us his 30-page list of apianarian supplies.

We have just printed for A. F. Bright, Mazeppa, Minn., a 16-page price list of poultry, bees, etc.

H. P. Landon, East Constable, N. Y., mails us a 4-page price list of bees and queens.

W. W. Bliss, Duarte, Cal., sends us his list of bee-keeping supplies, printed in the shape of a newspaper column, 3 x 28.

J. Lingensfelder, Akin, N. Y., sends us a 12-page list of queens and bees.

John Nebel & Son, High Hill, Mo., send us their price list of Italian bees and queens.

S. P. Yoder, East Lewistown, O., sends out a list of poultry and Italian bees.

CONVENTION NOTICE.

The annual meeting of the Western Ontario Bee-keepers' Association will be held in the Foresters' Hall, Chatham, March 20th and 21st, 1889. Come and bring your friends with you, as great preparations have been made for this meeting. The president of the O. B. K. A. will be present.

N. SMITH, Secretary.

FOR SALE CHEAP.

One second-hand Barnes saw with scroll attachment, in good order. One large Pelham fdn. mill, but little used; 300 good combs in L. frames.

6-7d GEO. E. BOGGS, Waynesville, N. C.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO., 3tdfb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

CORNS

A SURE CURE, 15c, prepaid. Address 5-12db T. G. ASHMEAD, Williamson, N. Y.

VIRGIN QUEENS.

The bulk of the traffic in queens in the near future will probably be in "Virgins." Every person sending direct to the office of the *Canadian Bee Journal* one dollar for one year's subscription (either renewal or new), in advance, will receive a beautiful virgin queen (value 60 cents), as soon as possible, in the season of 1889. Queens will be sent in the same rotation as each is received. American currency, stamps, and money orders received at par.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	to Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75
Tested.....	3 00	2 75	1 75	1 50
Untested.....		1 25	1 00	1 00
6 Untested.....		5 50	5 00	4 50
12 Untested.....		9 50	9 00	8 50

Contracts taken with dealers to furnish queens by the week at special rates. Address

5-2ldb J. P. CALDWELL, San Marcos, Tex.

In responding to this advertisement mention GLEANINGS.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION.

See advertisement in another column.

POTATOES. Four choice new varieties, and POTATUCC, 40 eyes of each, postpaid \$1.00. I have mailed potato-eyes as far as Wash. Ter., and never had a report of failure. A collection of BARE SEEDS, postpaid, 30c. Send now for catalogue of SEEDS, PLANTS, BEES, and QUEENS. 5-6-7d

CHRISTIAN WECKESSER, Marshalville, Wayne Co., Ohio.

In responding to this advertisement mention GLEANINGS.

NO. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50; No. 4, \$1.25; No. 5, \$1.00; No. 6, \$.65; Knife, \$1.15. On receipt of the above price, smokers and knives will be sent postpaid per mail. Descriptive circulars will be sent on receipt of request card. Bingham & Hetherington smokers and knives are staple tools, and have been used ten years without complaint, and are the only stovewood-burning clear-smoke bee-smokers; no giving out, no fussing, no going out, no vexation. Address

BINGHAM & HETHERINGTON, Abronia, Mich.

In responding to this advertisement mention GLEANINGS.

FOR SALE.—50 colonies of Italian bees, in Langstroth hives, cheap. Write for prices. 6-7d J. MATTOON, Atwater, O.

EGGs. Minorca and P. Rock. This yard headed by a 103-lb. first-premium bird, \$1.00 per 13. Vegetable plants in season by mail or express. 6d R. J. TOWNSEND, Sassafras, Md.

INDUSTRIAL Hives and Apiarian Supplies. Pure I. Queens, Bees, S. C. B. Leghorns, Bronze Turkeys, Toulouse Geese, and M. G. Carp. Free list. J. W. CLARK, 5-9db Clarksburg, Mo.

EARLY Untested Italian Queens, 75c. each. 6d YOUNG G. LEE, Charlotte Harbor, Fla.



BEES FOR SALE!

Colonies, Nuclei, Queens (Tested and Untested), at living rates. Send for circular and price list to

C. C. VAUGHN & CO., Columbia, Tenn.



In responding to this advertisement mention GLEANINGS.

Cash for Beeswax!

Will pay 20c per lb. cash, or 23c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 27c per lb., or 30c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

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Italian Bees and Queens.

Tested queen, \$1.50; untested, \$1.25. Bees, per lb., \$1.00. Frame of brood, 50 cts.; 3-frame nucleus, containing 2½ lbs. of bees, 2 L. frames of brood and tested queen, \$1.50. Queens reared from imported mother. Mismatched queens, 50 cts. each. Send card for price list.

MISS A. M. TAYLOR,

78d Box 77, Mulberry Grove, Bond Co., Ill.

In responding to this advertisement mention GLEANINGS.

50 Colonies of Bees for Sale.

In order to reduce my stocks. Same are Italians, in L. hives, with combs built on foundation mostly wired. Price \$5.00 per colony. Will ship as early as weather will permit, and guarantee safe arrival.

ADOLPH VANDEREIKE,

7d Lake Mills, Jefferson Co., Wis.

Apr. 1. For 60 Days. 1889.

We have on hand a large stock of one-piece sections, which are first class. To reduce stock we will name very low prices for the next 60 days, in any size lots from 1000 to 100,000 or more. Save money by letting us know what you want. Other supplies to correspond in price. Price list free.

71fdb SMITH & SMITH, Kenton, Hardin Co., O.

If like begets like, then I know you will like my well-liked Brown Leghorns. Eggs, \$1.00 per 13; \$1.50 per 26. Price list free.

A. F. BRIGHT,

71fdb

Mazeppa, Minn.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, \$2.00; after June 1, \$1.50. Untested queens, \$1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,

4-9db Bryant Station, Maury Co., Tenn.

1889. Italian Queens. 1889.

Having moved 8 miles from Nicholasville to a better location for bees, I will continue to raise queens, and more extensively than formerly. I will have the very best of Italians only. Select tested queens, in April, \$3.00; May, \$2.50; June, \$2.00; July 1 to Nov. 1, \$1.50. Queens warranted purely mated, \$1.00; 6 for \$5.00. Make money orders payable at Nicholasville. Send for circular.

4-5td Little Hickman, Jess. Co., Ky.

In responding to this advertisement mention GLEANINGS.

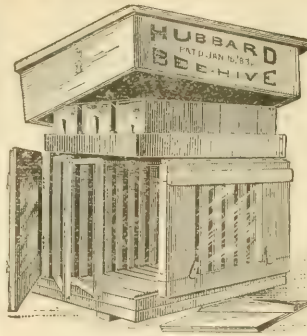
JAPANESE BUCKWHEAT. Per bu., \$1.50; per ½ bu., 80 cts.; per peck, 50 cts. By freight or express, not prepaid.

J. F. HIXON,

7d

Sir Johns Run, Morgan Co., W. Va.

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

G. K. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.
10c For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied.

In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 11fdb

G. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb.; C. D. Battey, Peterboro, Madison Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3fdb

CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

FOR SALE CHEAP.

One second-hand Barnes saw with scroll attachment, in good order. One large Pelham fdn. mill, but little used; 300 good combs in L. frames.

6-7d

GEO. E. BOGGS, Waynesville, N. C.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange pure Brown Leghorn eggs and cockerles (Todd strain) for any thing useful. Write first.
3tdb A. F. BRIGHT, Mazeppa, Wabasha Co., Minn.

WANTED.—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest.
3tdb R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED! Bee-Help. Will engage on favorable terms two young men, desirous of learning practical apiculture. None but strictly temperate need apply.
S. I. FREEBORN, Ithaca, Wis. 47db

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
OTTO KLEINOW, 4tdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange my new price list of pure Italian bees and Poland-China swine for your name and address written plainly on a postal card.
N. A. KNAPP, Rochester, Lorain Co., O. 5678d

WANTED.—To exchange early Italian queens for 10-inch foundation-mill, Novice extractor, and supplies.
YOUNG G. LEE, Charlotte Harbor, Fla. 67db

WANTED.—A situation with some apiarist. I understand theory, experience limited. Agreements on addressing
F. S. FEEKS, 67db 1604 Lamine St., Sedalia, Mo.

WANTED.—To exchange for thin or heavy foundation, or offers, queens or nuclei, one-story Simplicity hives. Send for price list.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y. Chenango Valley Apiary. 6tdb

WANTED.—To exchange Plym. Rock cockerles from Sugar Grove thoroughbred-poultry farm, Pitkin & Kilpatrick strain, at \$1.50 each, for bees by the pound. Correspondence solicited.
7-8d W. H. SWIGART, Dixon, Ill.

WANTED.—To exchange new 6-inch Root fdn. mill, cost \$13.00. Will exchange for 55 pounds good wax. Correspondence solicited.
7d LEAHY & CO., Higginsville, Mo.

WANTED.—The address of 1000 bee-keepers. Send, plainly written, on postal card.
W. E. GOULD, Fremont, Mich.

WANTED.—To exchange a Kelly duplex corn-grinder, No. 3, for a Barnes foot-power saw combined, or for foundation-mill, or for foundation.
7-8d LEE BEAGLE, Thornville, Ohio.

WANTED.—Two active young men to work in apiary; good chance to learn the business. References required. Address W. D. WRIGHT,
7d Altamont, Alb. Co., N. Y.

WANTED.—To exchange Vanderwort foundation for any quantity of nice yellow beeswax.
7-8d B. CHASE, Earlville, Madison Co., N. Y.

WANTED.—To exchange new 4 H. P. horizontal engine for bees. Give me a call it must go. 7-8d
J. B. OVEROCKER, Box 47, Melrose, Renss. Co., N. Y.

WANTED.—To exchange one Acme barrow, No. 10, new, for a good Poland-China brood sow.
7d LUTHER PURDY, Killbuck, Holmes Co., Ohio.

WANTED.—To exchange, a first-class violin, cheap at \$50.00, for a foot-power lathe. It must be iron, and in good order.
D. S. BASSETT, 7tdb Farnumville, Worcester Co., Mass.

WANTED.—Untested Italian queens, for which I wish to exchange eggs from choice pure-bred P. Rocks, at the rate of nine eggs per queen.
7-8d A. F. LOOMIS, Hartwellville, Mich.

WANTED.—To exchange Japanese buckwheat for a Novice honey-extractor, new, or nearly as good as new; \$1.50 per bushel.
R. ROBINSON, 7d Laclede, Fayette Co., Ill.

WANTED.—To exchange one ten-inch Root fdn. mill; has been used but one year, also 30 feet of 6-inch rubber belt, forbees or bee-papers' supplies.
7tdb THOMAS GEDGE, Kangley, LaSalle Co., Ill.

WANTED.—To exchange 400 brood-combs in L. frames, and 300 combs in half L. frames (half depth), valued at 10 cts. each.
7-8d MISS DELLY REYNOLDS, Sodora, Ky.

S. C. B. Leghorns; S. L. Wyandotte, and P. Ducks, 15 eggs, \$1.00, in exchange for bee-supplies, raspberry and strawberry plants, or beeswax.
7-8d GEO. A. WRIGHT, Glenwood, Pa.

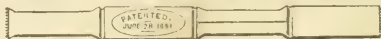
WANTED.—To exchange Japanese buckwheat for Pekin ducks, or eggs, Wyandotte eggs, Bee-supers for L. Hive, and Italian queens. Address
7-8d A. J. SHEPARD, Walker, Linn Co., Iowa.

J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

We have, ready for mailing, 100 large, light, tested Italian queens, imported mother, Sept. and Oct., 1888, rearing, very fine, at \$1.50 each. Untested, \$1.00; per doz., \$10.00. Send for circular. Money orders, New Iberia, La. 78d

In responding to this advertisement mention GLEANINGS.

J. FORNCROOK & CO., MANUFACTURERS OF THE "BOSS" ONE-PIECE SECTIONS,



WILL furnish you, the coming season, ONE-PIECE SECTIONS as cheap as the cheapest.
WRITE FOR PRICES.

Watertown, Wis., Jan. 1, 1889. 1-11
In responding to this advertisement mention GLEANINGS.

1889. 19th Year in Queen-Rearing. 1889. ITALIAN QUEEN-BEES.

Tested queen, in April, May, and June.....\$1 50
Untested 80
Sent by mail and safe arrival guaranteed. Also nuclei and full colonies. Eggs of Pekin ducks—White and Brown Leghorns, and White-crested Black Polish chicks, \$1.50 per dozen. Address

W. P. HENDERSON,
5tdb Murfreesboro, Tenn.
In responding to this advertisement mention GLEANINGS.

SECTIONS and FOUNDATION CHEAPER THAN EVER.

Sections Only \$3. Dealers write for special prices. Free samples and price list. 1-12db
(Near Detroit.) M. H. HUNT, BELL BRANCH, MICH.

WHITE Wyandotte and Hondan Cockerels, very choice, and strictly pure. Have more than I can use. Will box and ship for \$2.00 each—just half price. Eggs for hatching, 10 cts. each; 40 or more, 6 cts. each; or will exchange for bee-supplies.
JAS. EVANS, 6tdb Box 89, Schaghticoke, N. Y.

HONEY COLUMN.

CITY MARKETS.

MILWAUKEE. *Honey.*—Honey in fair demand. Best 1-lb. sections, white, 17@18; second same, 16@17; best 1-lb., dark, 15@16; second same, 14@15. If damaged and leaky, 10@12½. Extracted, in bbls., white, 8@8½; in half-bbls., 8½@9. Amber, in half-bbls., 7@7½; dark, in same, 6@6½; white, in tin and kegs, 5@5½. *Beeswax.*—Nominal, 26@27.

Mar. 26. A. V. BISHOP,
Milwaukee, Wis.

ST. LOUIS.—*Honey.*—There is some demand for choice white-clover comb honey in 1-lb. sections, which is hard to supply, as there is none on the market. It would sell readily at 15. Common comb and extracted honey is plentiful; comb, 10@13. Extracted, in bbls., 4½@6, as to quality; cans, 5½@7½, as to quality; cans, 5½@7½, as to quality.

Beeswax, 21@22. W. B. WESTCOTT & Co.,
Mar. 22. St. Louis, Mo.

CINCINNATI.—*Honey.*—No change worthy of note from our last quotations. There is now no overproduction by any means, nor an overstocking of the market. Demand is slow for all kinds of honey, and prices low. We quote extracted honey at 5@8 on arrival; comb honey at 12@15, in the jobbing way. *Beeswax* is in good demand, and brings 20@22 on arrival for good to choice yellow.

Mar. 21. CHAS. F. MUTH,
Cincinnati, Ohio.

BOSTON.—*Honey.*—Our market is very short of fancy white honey, and sales are good. We quote: Fancy one-pound, 18@20. Same two-pound, 17@18. Extracted, 8@9. *Beeswax*, 24.

Mar. 22. BLAKE & RIPLEY,
Boston, Mass.

NEW YORK.—*Honey.*—There is no demand, except for dark extracted, of which supplies are small. Comb honey is all sold. We quote extracted California honey at 7½@8½. Basswood, 8@9. Cuban, in bbls., 6½. *Beeswax.*—Yellow, 24; half white, for foundation, 28. F. G. STROHMEYER & Co.,
Mar. 22. New York City.

ALBANY.—*Honey.*—Market about over for this season, with very little stock and very little demand. We advise bee-keepers to use ¼-pound sections; not only increases prices, but causes much greater consumption. H. R. WRIGHT,
Mar. 22. Albany, N. Y.

ST. LOUIS.—*Honey.*—Market unchanged. Could sell some in barrels at 6½@7½. *Beeswax*, prime, 21.
Mar. 22. D. G. TUTT GRO. CO.,
St. Louis, Mo.

KANSAS CITY.—*Honey.*—Honey is in fair demand. 1-lb. comb, 15; 2-lb., 13. Extracted, 8.
Mar. 22. CLEMONS, CLOON & Co.,
Kansas City, Mo.

DETROIT.—*Honey.*—Prices are somewhat lower; best honey in one-pound sections selling at 15@16. Extracted, 8@9, in tin cans. *Beeswax*, 22@23.
Mar. 22. M. H. HUNT,
Bell Branch, Mich.

BEE-KEEPERS' SUPPLIES SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME.

Shipping facilities good. Send for price list of every thing needed in the apiary. 7tfdb

C. P. BISH, St. Joe Station, Butler Co., Pa.

Bees! Bees! Bees! Yes, Bees!

Bees by the pound. Italian queens and 100 swarms of Italian bees for sale. Hives in that, 44 cents each. Sections, one-piece, \$3.25 per 1000. Every thing needed in the bee-business, at rock-bottom prices. Send for price list and discount sheet for 1889.

R. E. SMITH,
7d Box 72, Tilbury Center, Ont., Can.

1000 Lbs. Bees with Queens and Brood.

Bee Supplies, Honey, & C. Price List Free.
Oliver Foster, Mt. Vernon, Linn Co., Iowa.
Mention Gleanings. 7-10db

CARNIOLAN QUEENS

From imported mothers. Untested queens, \$1.00; tested queens, \$2.00. J. B. KLINE'S APIARY,
7-10db Topeka, Kansas.

OH! RING THE BELLS!

OH! RING THE BELLS! THE MODEL B. HIVE CO. is coming to town with the New Jersey Bee-Hive, Nicest, Cheapest, Handiest, and Best; most complete 1½-story movable-comb hive in use. Takes L. frames crosswise. Thousands of them sold side by side of leading hives. Price \$2.50. Particulars and testimonials upon application.

GREAT SCOTT!

Bee-Keepers, Look Here! Brand-new, bright, fresh, clean, and pure brood comb foundation, 38 cts. per lb. Address

7d Model B. Hive Co., W. Philadelphia, Pa.

73c This ad. will not appear again. Mention GLEANINGS.

HALF-PRICE!

SOMETHING FOR THE GOOD WIFE.

Any one sending us \$3.50 for 1000 FIRST-CLASS SECTIONS or \$4.00 worth of other supplies may have one of our SELF-HEATING CHARCOAL SMOOTHING-IRONS for \$1.50, which is half-price. For description, send for circular, or see adv't in GLEANINGS for Oct. 15, 1888.

SMITH & SMITH,

7tfdb Kenton, Hardin Co., Ohio.

73c In responding to this advertisement mention GLEANINGS.

Pure Italian Bees For Sale

Two-frame nuclei, \$3.50; 3-frame, \$4.00. Full colony in A. I. Root's Simplicity hive, \$7.00. Each nucleus and full colony to contain a fine tested queen, and plenty of bees and brood, all on wired L. frames, combs drawn from foundation. To be shipped in May. Safe arrival guaranteed. Hives new, and every thing first-class. I shall do by all as I would be done by.

N. A. KNAPP,

7-10db ROCHESTER, LORAIN CO., OHIO.

73c In responding to this advertisement mention GLEANINGS.

Send for Sample of MY + + + Improved Lawn Bee-Hive,

With neat portico, cover, and bottom-board, nailed, and painted inside and out, lettered and numbered; 8 metal-cornered brood-frames with fdn. starters, 1 enamel sheet, 1 Heddon honey-board, painted edge; 1 T super, painted, filled with sections, fdn. starters, and separators, boxed and delivered at depot for \$4; on order for 10 hives the price of sample will be deducted. Money returned if not satisfactory. Write for prices in quantities. Early queens, nuclei, pounds of bees, full colonies, and supplies for sale. J. C. FRISBEE,
Prop. Evergreen Lawn Apiary. Suffolk, Nanse. Co., Va.

Mention GLEANINGS. 7-19d

Minorcan Queens.

Very prolific, and tolerably docile. No foul brood known. Will be sent from April to October, by mail, on receipt of \$2 greenback in certified letter.

F. C. ANDREU,

7-89d Port Mahone, Minorca, Spain.

73c In responding to this advertisement mention GLEANINGS.

CONVENTION NOTICE.

The first meeting of the Fayette Co. Bee-keepers' Association for the year 1889 will be held at the residence of J. W. Gillispie, Washington C. H., O., Apr. 11th, at 10 o'clock A. M. All members are cordially invited to be present as the election of officers for the ensuing year will take place on that day; also other important business. S. R. MORRIS, Sec.



Vol. XVII.

APRIL 1, 1889.

No. 7.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

OUT-APIARIES, NO. IV.

HOW MANY COLONIES IN EACH OUT-APIARY?

A GAIN we have a question to which no one is able with any positive assurance of correctness to give an answer. I think, however, the drift of opinion, of late years, has been toward a smaller number than in former years was thought possible. On page 905, GLEANINGS for Dec. 1, 1887, in reply to the question, most of the respondents agree on somewhere from 50 to 100, a good share of them having had no actual experience. Of those who have had experience, the answers show considerable diversity of opinion. Geo. Grimm says, "About 100 colonies." Dadant & Son say, "We do not want to exceed 100 colonies in any apiary." James Heddon says, "I keep about 200 colonies, spring count, in each of my apiaries." R. Wilkin says of Southern California, "About 300 colonies, provided no other bees are within three miles of you." E. France says, "We think our location will work 80 colonies, spring count, in each yard, profitably." There, you can read over those answers and then *guess* what will be right for you. P. H. Elwood says, "We keep from 70 to 100, spring count. Our neighbors crowd us some. Fifty would suit me best for best results, three miles apart, but we can't always put them just where we want them." Capt. Hetherington writes, "Our practice is to put 70 first-class stocks in an apiary—in a few cases 80, spring count. We find an advantage in about this number, as a man (with perhaps an assistant) will drive to such an apiary, *complete* the necessary work, and return the same day. With a larger number he could not do it; with less there is waste of time on the road." You see, Capt. Hetherington very wisely does not rest his decision entirely upon what may suit the

bees alone, but makes an important factor of the convenience of the apiarist.

Let us plan a little. Suppose you settle upon 70 as about the right number for a full day's work, and that you think there ought not to be more than 100 in one apiary. You have only one out-apiary, and a total of 200 colonies. You might put 70 colonies in the out-apiary, but then that would leave 130 at home—too many. Put 100 in the out-apiary and the 100 at home will be all right. You go to the out-apiary to-day and go through 70 colonies, leaving 30 that you must go and finish to-morrow. Manifestly, you might just as well go in the opposite direction to do those 30 to-morrow. So in general, whenever you have more than enough colonies to make a full day's work in each out-apiary, the best thing will be to start another apiary. Where you have the 200 colonies for your three apiaries, it is somewhat a question of convenience whether to keep 100 at home and 70 in one and 30 in the other out-apiary, or 100 at home and 50 at each of the others, or to divide the 200 about evenly between the three apiaries. If it makes no difference as to convenience of work, the last plan is probably the best. Please bear in mind, that although 100 may do well in one locality, 70 may do a little better, and 50 a little better than 70. "But," you say, "if there is clover enough to give 100 colonies all and more than they can do, how could a smaller number do any better?" Well, the clover doesn't last all the season. If it did there would be no object in having less than 100 in a place. Although the main crop of honey depends on a very few sources in one locality, as clover, linden, and perhaps buckwheat, yet there are great many other sources from which bees get a little, from some more, from some less. This varies throughout the season, there being a very short time, if indeed

there is any, when bees can find absolutely nothing upon which to work. Suppose at the poorest time in the season there is enough to keep only two colonies busy, then different times aggregating four or five weeks when 15 colonies can be kept busy, a few weeks when 40 colonies have all they can do, and so on, till we find a few weeks of clover when 100 colonies have all they can do. I think it is pretty evident that the two colonies occupying the whole field during the entire season will make a better average yield than the 100, and as you diminish the 100 your yield will gradually increase till the number gets down to two. Understand I don't say there will be any immense difference between 100 and 75, but still I think there will be some difference, and in making our plans we may as well keep in view the principle that the smaller the number the better chance each colony will have:

C. C. MILLER.

Marengo, Ill.

PURCHASING BEES.

QUESTIONS ANSWERED.

I AM requested to answer some questions in GLEANINGS, by one who says that he is a beginner in bee-keeping, he having been induced to go into the same by getting hold of a sample copy of the above-mentioned paper. In reading it he was seized with what is known as the "bee-fever," so has concluded to purchase some bees. He has subscribed for GLEANINGS, and thinks that I am just the one to answer his questions. In this last I think he has made a mistake, but will try, in brief, to do the best I can. He first asks what price he ought to pay for a colony of Italian bees in a movable-frame hive. Much depends upon the season of the year, and the condition of the colony. They are usually sold at from \$4 to \$6 in the fall, and from \$8 to \$10 in the spring. The reason for the difference in price is that, of late years, there seems to be much risk in wintering, nearly 75 per cent of the bees throughout all the United States being lost during one or two of our worst winters, while the average loss for the past fifteen years has not been much less than twenty per cent. If ten or more colonies are purchased of one party, the price should not be above the lowest figures given, for each colony. In an average season, and in a favorable locality, such a colony of bees should give 50 pounds of honey, besides one good swarm. The honey would readily bring ten cents per pound, or \$5, and the swarm should be worth \$4 without the hive, in the fall, which would nearly give the purchaser his money back, even if he lost the old colony, or fifty per cent of his bees, during the next winter.

DISEASED BEES.

He next asks, "Are bees subject to disease or epidemics?" There is only one disease of any account among bees, aside from our wintering troubles, and that is termed "foul brood." The cause of our wintering troubles, "doctors" do not agree upon, some claiming that continued cold causes it, others that it all comes through the pollen which the combs contain, while others talk of confinement, dampness, lack of ventilation, etc. Whatever may be the cause, our greatest mortality occurs during the latter part of a long, steady cold winter, an open winter being favorable to the successful wintering of bees, as the present season is

proving. Foul brood is of a different nature. The character of the season has nothing to do with it. So far no one knows the cause, except to guess at it. However, all agree, that the disease is carried in the honey. One bee-load of honey taken from a diseased hive to a healthy colony is sure death, in time, to that colony; so the greatest possible care should be used, where a colony is discovered having the disease. For symptoms and cure, see late volumes of GLEANINGS.

COST OF HIVES.

He next says he thinks of making a hive "14 x 22 x 11, with an outer shell for chaff, the whole to be covered with tin, and painted," and desires to know about what the cost would be. I should guess about \$4.50 for a single hive; while if 10 to 25 were made, \$3.75 each ought to buy them, including frames, sections, and all. But let me ask, "Why make such a hive?" It is out of the regular size, and could not possibly give better results than any of the hives now in use. There are four styles of hives in general use; the Langstroth, Quinby, Gallup, and American, any of which would give as good results as the one spoken of, and at much less cost, while any of them can have the chaff box fixed on the outside of it. Besides, all of the sections, frames, etc., to these hives fit the shipping-cases, extractors, and other conveniences, manufactured by most of our supply-dealers. A complete Langstroth hive can be bought for about \$2.00. It is one of the mistakes made by many beginners, in thinking that they can get up a hive "just a little better than the older heads have done," thus causing much complication in our business.

HONEY YIELD.

Then he wants to know, "How much honey should an Italian colony average annually?" Very much would depend on the location and management. Taking the United States together, the average yield among specialists is about 50 pounds per colony, spring count. Some years give double this amount, others very little or nothing at all. My average yield, for the past 16 years, has been not far from 80 lbs. to the colony, which I had in the spring. Best average (1877) was 166 pounds; poorest, about 30 pounds.

ALSIKE CLOVER.

Next he asks, "Does alsike clover suffer from drouth?" To about the same extent as does red clover, as it has a very similar root; but no kind of clover is infallible as to its honey yield. Very dry or very wet weather is against the secretion of nectar in flowers, and especially are cool or cold nights damaging. The last, in my opinion, are the cause of more failures of honey than all other causes combined, unless it be weeks of cloudy, rainy weather, together with high winds, which prevent the bees from leaving their hives in search of stores. There is an occasional season, when bees are kept at a loss in some localities, as all bee-keepers are willing to testify—seasons when they hardly get a living during the summer months, saying nothing about laying up stores for winter. However, the alsike clover is about as sure a yielder of honey as any thing which we have.

WAX-MOTHS.

"Is there danger of losing colonies by moths or other insects?" is the last question. The larva of the wax-moth is about the only real enemy which the bees have in the insect line. These feed upon the combs, and burrow through them, and in very

weak colonies often nearly or quite destroy them, changing them by consumption from the nice symmetrical cells for brood and honey, into a mass of webs and cocoons. However, there are no strong colonies destroyed from this source, especially Italians. In fact, where pure Italian bees are kept exclusively, these pests are rarely ever seen. Still, combs not protected by bees, especially those having pollen in, are always subject to their ravages, and should be looked after during warm weather. If signs of worms appear, the combs should be placed in a tight barrel or box, and fumigated with burning sulphur, having all fixed so that there can be no possible danger from fire. All combs taken away from the bees during the fall, winter, or early spring, are comparatively safe till swarming time, if hung an inch or so apart, so that the air can circulate freely through and about them.

G. M. DOOLITTLE.

Borodino, N. Y., Mar. 18, 1889.

WINGS OF INSECTS.

PROF. COOK TELLS US SOME WONDERFUL THINGS ABOUT THEM.

HERE is something in the very words "wing" and "flight" that stirs the imagination and wakes to life all the poetry and sentiment that there is within us. Even as practical people as you and I, brother Root, feel a sort of thrill and uplift as there comes to our ears, either upon the wings of memory or song: "Oh had I the wings of a dove, I would fly." Indeed, there are very few of us so stolid and inert that we are not roused, interested—yea, pleased—as we note the swoop of the osprey, the graceful curves of the swift-flying night-hawk, the easy, gentle motion of the listless butterfly, or the quick, arrow-like descent of the industrious bee. All of these are interesting, fascinating, and have claimed a large place in song and story all down the ages. In this article, however, I shall ignore sentiment and poetry, and aim to describe accurately only the insect's wing.

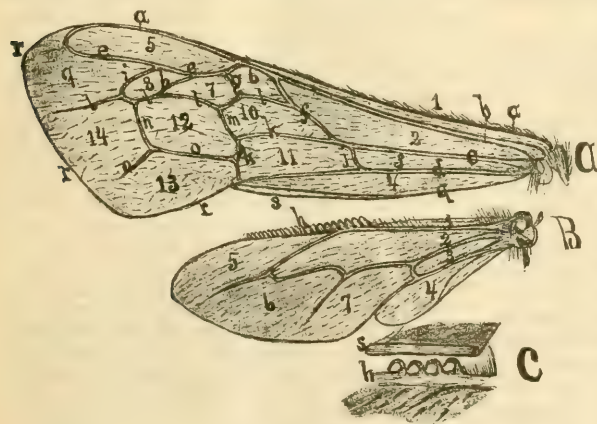


FIG. 1.—AN ENLARGED VIEW OF A HONEY-BEE'S WING.

The wing of the honey-bee, Fig. 1, is long, strong, and narrow. Such a wing, called falcate, indicates rapid flight. A bee or fly will rival a fast-running horse in speed. This same fact holds with birds. The hawks, pigeons, and night-hawks are noted for

their easy, graceful, and, upon occasion, their rapid flight. Their wings are all falcate. Our common meadow-lark has a labored, awkward, and lazy flight. Its wings are broad and short. Among insects the butterfly has a slow flight and broad wing.

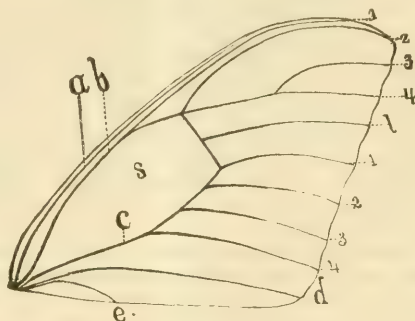


FIG. 2.

The insect-wing consists of a thin membrane spread upon a framework of veins, or nerves. These veins are hollow, and so carry nourishment—blood and air—to the wing. The veins vary greatly in number and strength. Thus in the higher insects the veins are few and strong; in the lower, many and frail. In the lowest order of insects—*Neuroptera*—the veins are so numerous that they resemble lace, and we have the common name, lace-wings.

According to our modern philosophy of development, which now is universally accepted by scientists, we should expect much variation in organs as useful as are wings, and it is so. Thus the wings are useful in defining orders, and even lower groups down to species. Indeed, the names of the orders come from the character of the wings. *Hymenoptera*—the highest order, including bees, wasps, ants, etc., have four membraneous wings, hence the name, which means membraneous wings. So the word *Lepidoptera*, used to designate the order of moths and butterflies, means scaled wings,

and was given because of the shingle-like scales which adorn such insects. These scales rub off easily, and so the care required in handling moths, if we would keep our specimens in first-class order. The name *Diptera*—two wings—refers to the fly order, including mosquitoes, house-flies, bot-flies, horse-flies, etc. The word is very appropriate, as it means two wings. Thus we have *Coleoptera*, sheathed wings, for the beetles; *Hemiptera*, half-wings, for the bugs. The wings of the typical bugs are thick at the base, and appear like half-wings. Thus they are only half-wings in appearance. *Orthoptera*—straight wings—includes the crickets, grasshoppers, etc., whose front wings are long, slim, and straight. *Neuroptera*—or nerve wings—is very appropriate for the lowest orders, as is also their

common name of lace-wings. Here are found the dragon-flies, day-flies, ant-lions, etc.

There are five main veins in the best-developed wings. Thus (see Figs. 1 and 2) *a* is known as the costal vein, or nerve; *b*, the sub-costal; *c*, the medi-

an, or externo-medial; *d*, the sub-median, and *e* the internal or anal. The large open space in the wings of butterflies (Fig. 2) is called the discoidal area. In the higher orders the cells are all named. Thus, in the bee (Fig. 1), 1 is the costal cell; 5 the marginal, and 6, 7, and 8 the sub-costal, or cubital cells. These are very much used in classifying and describing different bees. Thus, the cells will be alike in bees of the same genus. All hive-bees will have wings as in Fig. 1; so the bumble-bees—*Bombus* will all have similar wings; and the carpenter bees—*Xylocopa*—etc. In entomology, then, we are ever studying these wings, for they are one of the most sure keys with which to unlock the curious relationships. Insects may and often do look very much alike; yet a study of the wings will show they are widely apart.

When insects like bees, wasps, butterflies, moths, etc., have two wings on each side, which act as one in flight, they are usually hooked together. In the honey-bee there are from eighteen to twenty-two of these hooks (Fig. 1, *h, h*), on the front, or costal margin of the hind or secondary wing. These hook into a fold of the front wing (Fig. 1, *s*). This fold is on the hind margin of the wing, which folds up and over. In butterflies and moths there is but one hook, which is close to the base of the wing.

Many insects are apterous, or have no wings. In such cases there are usually structural indications that the ancestors of such insects possessed organs of flight. In these ancestors, owing to changed habits, the wings were not used, and nature snatched them away. I am sure nature abhors a useless member, whether of an animal or of society. We can often see nature whittling away these organs. Thus we often see insects with wings weak and abortive. The insect, from its mode of life, has ceased to use its wings; and nature says, "If you tie up my gifts in a napkin, I shall take them away." Just as nature says to us, "Think, study, or soon you will have no brain power for thought and study; exercise, or soon you will have no muscles to work with." What a unity—a oneness of plan—runs all through nature! Even the study of nature alone, proclaims that there is *one* God, and he is in all and over all.

The rate of flight in insects is marvelous beyond comprehension. The bee flies often twenty miles an hour, while very tiny flies will often keep abreast of a horse in full speed. Landois, judging from the pitch, finds that the bee's wing may vibrate 440 times per second. While there is no doubt about the truth of this statement, the fact baffles comprehension. The sole use of the wings of most insects is for flight. A few insects, however, like the crickets, locusts, and grasshoppers, use them to voice their feelings. The love-note of the grasshopper, cricket, and katydid, is produced by motions of the wings alone, or of the legs and wings. Thus the insect chorus which sounds by day and night during the warmth and sunshine of summer and autumn is but the love-songs of these myriad Lilliputs. These songs which "rasp the silence" are sure signs that sentiment and emotion reach even to the lesser forms of animal life; and while they are no proof that insects possess ears, they do show clearly that insects have a very delicate sense, whereby they take account of vibrations.

Agricultural College, Mich.

A. J. COOK.

Well, old friend, you have given us one of the grandest talks above that ever came

from your pen. I did not know before that you felt a thrill whenever a winged insect passed by; and I have sometimes thought that I was more imaginative than most people, when that thrill comes to me over and over again, suggesting that somewhere or some time we too shall be wafted through the air. I do not know whether it is coming through machinery or by the aid of some great bird that shall be bred up on purpose to carry people through the air; but I am certain that God, in his infinite plans, has this in store for us. We breed horses for great burdens, and also for speed—why not birds? By the way, who will tell us the most fit bird to commence with? I suppose the brothers and sisters down south will laugh again if I suggest turkey buzzards as being somewhere in the line. They are gentle, and have enormous wings. They can already carry a considerable burden, for I have seen them do it. Friend Cook, there is one more problem that has troubled me sorely, that I do not find touched in your talk at all. Why does an up-and-down motion, or, in fact, any sort of motion of a flat wing, like the wing of a bee, carry it aloft in the air? I have read some learned papers on this subject, but they do not satisfy me. I can understand how a bird flies, because the wing is concave; but why does the paddling motion of a butterfly with its wings enable it to soar aloft? Every spring, when butterflies come around, I watch and ponder; but I have not got any further than the old gentleman who replied to his good wife on a various lot of problems, "Case it does." The motion of the wings does enable them to fly, but I do not see why. Then, again, there is a species of bugs that have a coarse dark overcoat under which they tuck their gauzy wings to keep them nice. It always reminds me of a city belle putting away her gauzy laces and trimmings in a big Saratoga trunk. When these bugs alight you would think they could never tuck the filmy wings under these black shells at all; but they fold them all under very quickly and very neatly; and when the sun comes out they manage in some way to get them spread without very much fuss or bother either. When fighting squash-bugs alone, sometimes I have been tempted to waste time in seeing the little rascals fetch out their wings when I got at them. My daughter, Mrs. Calvert, has a pet canary bird that flies all over the house. It alights on her head and shoulders, flits from one hand to the other when she is doing her work, and a study of the deft and skillful way in which that bird uses its wings awakens that same thrill you have mentioned. The bird has become playful, and it is the wonder of "Root village" to see how much sense can be packed away in such a little mite of golden feathers. No doubt it is true that God takes away our talents that are unused; but don't you forget, dear friend, to mention that the reverse is also true—"To him that hath shall be given"? Just as sure as we begin to develop the talents we have, a vast extent of unexplored region begins to unfold itself before our wondering eyes; and it is right in this

line that I believe we are going to be able to enjoy flitting through the air by and by. Our proof-reader suggests another thought. Here in Medina just now it is exceedingly muddy. His thought is this: That it seems to be too bad that *man* should be compelled to trudge through the mud, while even the *turkey buzzards* fly with such wonderful ease through the air.

RAMBLE NO. 13.

AMONG THE MOUNTAINS; RUINING THE HONEY MARKET, ETC.

"It's all very well for poets to tell,
By way of their songs adorning,
Of milkmaids who rouse to manipulate cows,
At five o'clock bright in the morning;
And of mooney young mowers who bundle outdoors,
The charm of their straw beds scoring,
Before break of day, to make love and hay,
At five o'clock bright in the morning."

THE Rambler considers it very unwise and unhealthy to get up before sunrise. This is an excellent rule to follow in the winter, and it is with regret that we see the days lengthen; but "old Sol" is inexorable, and he peeps into our window a little earlier every morning, and bids us arise. It is a noticeable fact, that those people who sleep in church are the ones who

Get out of bed, their house, and their head,
At five o'clock bright in the morning.

It is far better to take the needed sleep in the morning than to take time for naps during the busy hours of the day. I am led to thus discourse upon early rising because I thought the sun had forgotten to shed its morning beams on the Virgil mansion. Getting tired of waiting, I went out to see about it; and after waiting a little I saw a glorious sunrise over that rocky cliff.



"HELLO, OLD SOL! IS THAT YOU?" SUNRISE AT MR. VIRGIL'S.

I found Bro. V.'s headquarters in a small but convenient shop. The most of the work of getting out portions of hives, crates, etc., was done on a

home-made foot-power saw, which showed evidences of much hard work. The apiary did not look so bright as it would if more paint had been used, but it was evidently laid out for convenient work; and as the proprietor is after money and no poetical fixings, perhaps it is just as well. If the owner is pleased, the Rambler certainly is.

The honey-house was a neat little affair, crammed full of implements, and a few crates of very fine honey. Bro. V. keeps up with the times, and produces A No. 1 comb honey, and does not make much effort on extracted honey. Cappings and all pieces of comb are thrown into a barrel, and a heavy maul pounds all into a solid mass, proof against miller-worms, and in time it is rendered into beautiful wax, at which business Mr. V. is an expert. He is also an expert bee-hunter. Several swarms are secured every fall from the surrounding mountains. Cellar wintering is practiced, and, owing to the lowness and level nature of the land, the water floods the cellar at very inconvenient seasons; and perhaps early in March all hands have to work lively to get the bees out of the cellar to prevent total destruction. Still, Mr. V. has had very good success in wintering. I think I suggested the digging of a cave into that rocky cliff for wintering, which could be easily done.

After breakfast we struck out for other bee-keepers in the vicinity.



"IT DON'T PAY; I'M GOING TO NEW-BRASKA."

Mr. —, whom for convenience I will call Jones, we found with a score or more of colonies. This man's methods conflicted somewhat with Mr. V.'s. Several bee-keepers in this vicinity find market for their honey in Whitehall, a village of about 4000 inhabitants. Jones lives the nearest, about a mile; and as soon as a few pounds of honey are ready to come off, he trots it into the village and sells it at a remarkably cheap rate, demoralizing the market for those who have a better quality of honey in better shape. As a result there is any thing but good feeling toward him from those who have honey to sell in the same market. Mr. Jones's bees were mostly in box hives. He loved the bees, and wished he could work with them all the time. Not attaining much wealth, he wanted to sell out and go to "New-braska." The disease seemed to have a strong grip on him, and, from Mr. V.'s remarks about what a glorious country is found in the West, I had no doubt but he wished the "New-braska" fever would take his neighbor far away.

About three miles from Whitehall resides Mr. C. Beckwith, another of those enterprising young men who have tried many things and found much vexation of spirit where, to the imagination, things

were all lovely. Mr. B. had about 100 colonies; had purchased a steam-engine, saws, many tools, had invented a hive with a frame differing in size from any other he ever saw; and now, after getting up to 100 colonies, he wanted to sell out! Reasons, a large farm to manage, and he found raising potatoes, fighting bugs, milking cows, fattening pigs, or hunting woodchucks, all a bigger bonanza than bee-keeping. "Come, make me an offer for the whole business. Why, that pestiferous Jones, down by the toll-gate, has ruined my trade in the village; and if he wants to go to Neu-u-braska, we had better bundle him off to-morrow."

Nothing would console our friend Beckwith, and we left him, considering that nothing could remedy these cases of conflicting interests but co-operation, or the purchase of the stock of the mischief-maker. We find that, when the interests of many bee-keepers center in one moderate-sized town for the sale of their product, there is more or less conflict, resulting, perhaps, in a few, who have a good standard article, in withdrawing entirely from the local market and shipping to commission men.

I would ask Mr. J. A. Buchanan, who has given us much interesting information upon the sale of honey, if he has had this damaging competition in his experience, or how he could overcome it if it should arise. The Rambler has had some experience in selling honey through a farming community, and thus far has had no competition; but even if there were, we should be no worse off than nearly every salesman of other goods of whatever description. I find the best plan to sell honey is to combine it with the sale of some other articles, and keep the cart going all the year round. "A continual dropping will wear a stone;" so continual trips will wear away a big pile of honey in a year. If all the honey in a certain district were placed in the hands of a competent local traveling salesman, there would be but little to go to commission men. Hurrah for the honey-peddler, the sweetest man on earth! That's what all the gi-gir-boys say about the

RAMBLER.

P. S.—In relation to the age of pigeons when ready for market, I do not know. The authority from whom I got my information in relation to growth was a fancier, and did not grow pigeons for sale. I notice there is a difference of opinion between our prominent authors in respect to the preparation of food for the young bee. Cheshire claims that larval food is secreted by a gland located in the head of the bee, around the eyes. Cook claims that it is not a glandular secretion, but chyle, and that the glands merely secrete a ferment that aids in digesting pollen. Whoever may be right, we know there is a concentration of food, and in the pigeon we have an unquestionable demonstration of it on a comparatively large scale.

Thanks for your kind invitation to that California trip. Nothing would please the Rambler better than a visit to the Golden Gate; and as I have relatives in Oakland, I fear my visit would be prolonged should I get there. The editors of GLEANINGS are cordially invited to come east. The Rambler and many others are ready to extend such fare as they have, and the best of it, to those they have

known so long. Yes, that is the Rambler with his hands on his knees, but that can not be the R. at the blackboard—the person is too aldermanic. The R. wears a smaller vest. That man weighs 200 lbs.; the R. only 140, and 5 ft. 10 inches. R.

FIXING FOR HONEY EXHIBITS AT FAIRS.

A BRIGHT SUGGESTION FROM FRIEND HOLTERMANN.

FRIEND ROOT:—I was much pleased with Dr. Mason's articles on the above subject, and also with the display of honey and bee-keepers' supplies at the Ohio Centennial. There is one point, however, which I did not like at all at Columbus; and now Dr. Mason has an illustration of this objectionable feature—"so, there now!"

The regular shelves (or irregular, if you like) as illustrated are unsightly, and particularly so if not completely covered by the exhibit. I have used them, and now avoid them, and try to break the monotony of the show as far as possible. In my estimation, a platform four or more feet deep, and the height of an ordinary table to start on, is desirable. Put your first shelf on this, as in Dr. Mason's illustration, but run it back the same distance as the table. Then place some of the boxes used in shipping goods to the exhibition (height about 15 inches and the right size) on the shelf thus described, and lay the boards which form the tops of crates for Stanley honey-extractors (being eight-sided as here shown) on top of these boxes. Upon

these eight-sided boards place other but smaller boxes, and then put on the top-board of the crate for an ordinary extractor, which is the same shape (8-sided) and much smaller. On top of this, put another box. Then toward the right and left ends of the shelf I build another pyramid, only smaller, and cover all with white paper (I claim there is no better color for covering), and then arrange my exhibit. The pyra-



HOLTERMANN'S ARRANGEMENT OF SHELIVING FOR EXHIBITS.

mid I can make still higher by placing upon it first a 10 gallon can, then a smaller; and on top of all, glasses with honey. It breaks the monotony of these shelves; and if you mix in comb honey in crates, which is desirable, a very neat display can be made. A few pots of flowers (the pot covered) add greatly to the display.

You can put a number of your cases in a safe place—quite an item when you would otherwise have to put your cases with thousands of others, and can not find them at the close of the exhibition, and realize you are not at home, where you could replace them.

There was a monotony about the extracted-honey

display which I did not admire. It is very difficult to break this with only extracted honey, in any case, but it is well nigh impossible with shelves. As before stated, the monotony can be broken nicely with a photograph, say of father Langstroth, then individual bee-keepers, or some of the many groups, diplomas received at previous exhibitions (of course these diplomas must be put in after the prizes have been awarded); cakes of nice wax, and flowers in pots, or cut flowers. It is a very good plan to bring along a honey-extractor, and combs with half of the combs on each side uncapped, and out of which you have extracted the honey previously. In this way you can show just how extracted honey can be secured. When bringing material for display, bring what is lightest, and will make the most display after considering their advantage otherwise. Articles bad for packing, avoid.

Brantford, Canada.

R. F. HOLTERMANN.

Friend H., I believe you are right. I have a great many times felt what you describe, when visiting exhibits at fairs. The same thing is also true in the arrangement of grounds, greenhouses, and gardens. A little bit of variety, even if nothing more than an octagon pyramid between two square pyramids, often gives a peculiar grace and charm to the whole arrangement that would be entirely lacking without it.

ATTIRE FOR THE APIARY.

MRS. HARRISON GIVES US SOME SUGGESTIONS IN REGARD TO THE WAY A BEE-WOMAN SHOULD DRESS.

I FEEL a little slow this morning, so I sit in the rocking-chair, with GLEANINGS in my hand, and admire Rambler in his pretty checked suit. I really believe he has a bow of natty ribbon at the bottom of his pants; perhaps the button was off, so he tied one around to keep out the inquisitive insects.

How I envy him that suit, because it is light, cool, and handy! I might raise "von tollar" and get one "zhust a fit;" but if I donned it, a policeman would whistle for the patrol wagon and take me to the calaboose on the double-quick. I should think the bees would investigate the inside of the blouse, as it appears so loose at the bottom; but then a belt buttoned around would easily prevent that. I've tried hats and veils many times, with the result of a pretty sore chin and neck. I could protect my nose, but I could not fasten the veil so that, in working, the bees would not sting through. The brim would keep the veil far enough from my face; but in stooping the bees would sit down on the back of my head and form a chain around my neck.

I want to dress according to my work, whether it is in the apiary, washing, or blacking a stove. In the apiary I have to guard against heat and stings. I have for many years worn a health-reform costume, with the idea in view of clothing the body so as to promote an equilibrium of circulation and warmth. In warm weather I wear a cotton suit, consisting of waist and drawers; formerly I wore them made in one garment, but I much prefer them separate. The waist is high neck and long sleeves, and is supplied with buttons at the bottom, for to button the drawers upon. The drawers reach to the ankles, and are kept in place with a

strap passing under the foot. I'm clothed when I have on these garments, and I've had bees creep up from my feet and come out at the neck, without stinging. The hose are drawn up over the drawers, and at times I fasten the sleeves tightly around my wrists. If I go to work in the apiary with slippers on, I generally have cause to regret it, as I get stung in the feet, so I wear a leather shoe.

When working in the apiary, if I had to wear corsets, bustle, and two or three skirts, I should cry out about bee-keeping being too hard work for women, just as Mrs. Chaddock does, and throw mud at those who venture to attempt it. I keep my bee-dress hanging in the honey-house; and when I work in the apiary I take off my house dress, hang it up, and put this on. When the thermometer is playing around one hundred in the shade, I wear a skirt and linen sacque. I put on my wire hat, then the sacque which covers up the cape, so no bees can possibly get at my head, fasten the sleeves tightly at the wrists, then the skirt. I do not let the bottom of the sacque hang loose; if I do not wear an apron tied around me I put the skirt-band over it. I'm not dressed for company, but for work in the apiary, protected from stings and from being overcome with heat. Should company call, or when dinner is ready, I retire to the honey-house, wash, and put on my ordinary clothing, which takes but a moment. I'm warm, and I need more clothing when I sit in the shade.

Women who are not very young or strong can do a great deal of work in the apiary if they manage well. We have about thirty colonies of bees on the east side of our house, and they are in the shade after two o'clock. If there are sections to be put on or removed, or any other work to be done here, I do it when the hives are in the shade. There are other colonies that can be worked with in the morning, when they are shaded. I could not work with the hot sun pouring down upon my head.

We run our apiary for comb honey, but I extract several hundred pounds every year, and in a quiet way, so that the family are not aware of it. When I know where I can get some honey to extract, I take my tin comb-basket, remove the filled combs to it, put empty ones in their place, and carry them to the honey-house. When I've extracted them I put them in the bucket, snap the cover over the uncapping-can, cover up the extractor, change my clothes, and no one knows what I've been doing, but find out next fall and winter. I never do any big day's work in the apiary, unless I am driven to it in swarming time.

MRS. L. HARRISON.

Peoria, Ill.

My good friend Mrs. H., I am glad you have given us these suggestions. As soon as I saw what Rambler had said, I remarked at once to Ernest that somebody should give us some suggestions for a woman's suit. I suppose you know that I do not at all believe or advocate that women should dress as men do, therefore I am glad you have such strict "police regulations" in Peoria. I think you have got the idea of a bee-dress for women exactly, if I understand you. A woman can dress just as comfortably as a man, and she can protect herself from stings; and then, for the very reason you give, she should have something light to throw over this working suit to make herself look womanly, and that she may not attract attention from passers-by.

Just one thing more, my good friend: If the police regulations could only "regulate or restrain" (prohibition would be out of the question, I suppose) the growing evil of—not intemperance this time—but those very bustles you have alluded to, Uncle Amos would feel happy, even if no one else did.

THE STARVING COLONY.

THE ALFILARIA.

Starvation's form sat grinning at their door—
Their only guard—what need had they of more?
They called a meeting then, in Sally Hall,
To see if they had means to live at all.
An aged warrior cried, "My race is run,
While many more of yours have just begun.
Three cells are left—a scanty store, I ween,
And I would move we leave them for the queen.
We may die slowly—singly—one and all—
But our dear queen must be the last to fall."
"I charge you now," she cried, with pleading eye,
"To tell us plainly if we have to die;
Tell us what foe we have to face or fear;
And quickly, too, or it shall cost you dear!"
"Arm! arm!" he cried, "'tis not the crack of doom
I come to tell; the 'filaree's in bloom!"
A shout went up that made the welkin ring,
And every bee began to *whet his sting*.
A round applause was given that shook the floor,
When all at once a scout stood at the door;
And he had that within his eye which told
That he had potent news to there unfold.
"Arm for the fight," he cried; "each warrior, arm!"
Each stood aghast, with terror and alarm!
And then the queen, to aggravate their fears,
Stood up and burst into a flood of tears.
The fainting queen fell helpless to the floor,
While all rushed pellmell for the door.
And then they raised the song they always sing,
When every bee is *every inch a king*.
The scout and queen were then a happy pair;
For now she sang and wept for joy there.
But, hark! The first-returning song she hears,
And, starting up, she wiped away her tears.

I.

"O my queen mother! I come, I come,
Over mountain, hill, and dale,
Through the deep and silent vale.
Every thing was dry and stale—
I thought the very skies looked pale."

II.

"O my queen mother! I come, I come—
I hied me to a vineyard bare,
Where oft the bloom is rich and rare—
Found only desolation there,
As I swept through the silent air."

III.

"O my queen mother! I come, I come;
But further on—on lower ground,
A lovely green rosette I found—
Not only one—but they abound
In great profusion scattered round."

IV.

"O my queen mother! I come, I come;
I found the purple star was there;
And the green rosettes, so rich and rare,
Are coming up in thousands, where
The ground of late was stark and bare."

V.

"O my queen mother! I come, I come;
And here I now present to you
This shining drop of nectar new.
The purple star that's always true,
Now gives her first fruits unto you."

VI.

"O my queen mother! I come, I come;
A hundred now behind me stand,
With nectar from the vineyard land.
A sweet surprise the scout had planned
When we lay on the starving stand."

The alfilaria is one of the most nutritious grasses of California. It comes up first in well-worked, clean ground, in the shape of a green rosette. The rosette looks as if it were made out of small fern leaves. In the middle of it first appears a small purple star; then another and another, until the grass loses the shape of the rosette, and bears hundreds of flowers. It lasts until the black sage blooms. It lies so flat on the ground, when it first blooms, and the bees are so thick on it, that I have been often afraid of trampling them to death in walking over a patch of it.

Bees on this coast, so far as I have handled them, are more vicious and vindictive in the honey season than at any other time. In the dry season and in the fore part of the winter, they hang in the upper story of the hive, many times three inches deep. They seem to be listless and lazy, and are ashamed to look you in the face. I do not believe that over five per cent are in the air, at any one time during the whole time from the close of the honey season until the opening of the flowers the next year. I have thought that they keep only scouts out during all this period. Two or three puffs of smoke will settle them at this time, but it takes volumes of it to take off honey, or to go into the brood-chamber during the honey season.

J. P. ISRAEL.

Olivenhain, San Diego Co., Cal.

Why, friend I., the very mention of alfilaria, especially as you put it, brings up many happy memories; and I want to say to our readers, that, when I first set foot on the soil of California, there was not a green thing nor a living thing to be seen on the mountains, and hardly any thing in the valleys—that is, without the aid of irrigation; but under the influence of a summer rain, in just a few hours the whole landscape became clothed with green, and a great part of the green came from the 'filaree. When I was a jeweler we used to have a certain kind of work which we called "filagree." Well, the filaree suggests just that. It comes up as grass, and I am told it makes excellent feed. The beautiful bright green has a sort of mellow golden tint that is sure of captivating any one who loves nature. In the most protected valleys I watched for the largest specimens, hoping I might catch a glimpse of the tiny flower, but I didn't; and inasmuch as there are thousands of acres of it, and it comes up spontaneously everywhere, I don't wonder that the bees rejoice when it comes in and saves from starvation perhaps thousands of colonies. I have so many times watched the bees in their rejoicings when the first honey came in from the soft maples, that I can readily imagine your poem to be true, at least in sentiment.

CAPT. HETHERINGTON.

AS A BEE-KEEPER—CONTINUED.

CAPT. HETHERINGTON is a skilled mechanic, and makes all of his supplies, including extractors, box-making machines, etc., even to the three dozen wheelbarrows he uses in his different bee-yards. The material is prepared, ready to put together, in his mill, five miles from home. He prefers, when he has to oversee a dozen or more men, and keep their machinery in order, to put that distance between himself and those who would call him from his work. His honey-boxes, clamps, cases, etc., are models of perfection and neatness. His packing-cases are of the whitest basswood, papered inside, so that there may be no leak, and the boxes rest on cross-cleats, so that the drip may be kept from them. At the Centennial his exhibit of 3500 lbs. in single-comb sections, together with a variety of ornamental packages of honey and wax, was admired by all. The exhibit was built up to represent the turreted front of an old castle, so arranged as to allow the light to pass through in the freest manner; the whole surmounted by the flag under which he fought for three long years. The highest prize was awarded him—a medal and diploma. Two years before this (1874) he had made a large shipment of comb honey to England, which Mr. Quinby said was the first sent abroad in quantity. At this early date he recognized that the relief for an overstocked market here must be sought abroad. It is to be regretted that our wholesale dealers have not persistently followed up this exportation, as there are but few difficulties to overcome, aside from the national prejudice of the average Briton that foreign products are not quite as good as home productions. Our climate is drier, and we have a better proportion of sunshine than England, conditions which should give our honey a superior body and flavor. While Mr. Cowan, editor of the *British Bee Journal*, did not admit this, other distinguished visitors have done so, and it is confidently expected that, in the not distant future, the early expectations of Capt. Hetherington will be realized, and that Great Britain will demand some of the products of our apiaries.

Messrs. Cowan and Young, on their recent visit to this country, recognized Capt. Hetherington as the most extensive bee-keeper in the country; and on his return, Mr. Cowan stated, in an address to the British Bee-keepers' Association, of which he is the recognized head, that at Cherry Valley, N. Y., he "met the most extensive bee-keeper in the world." This October his colonies number about 3000, located in twenty-two apiaries. The management of these large numbers must necessarily be in a systematic, wholesale way, to which we may fairly apply the word extensive rather than intensive. His results per hive should not be expected to equal those who keep a smaller number, cared for with the closest possible attention, although it can be said they do not fall far short. In a good many of the details of business, however, the word, "intensive" might very appropriately be applied, for in the mechanical perfection of his supplies of all kinds, and in the neatness and order displayed in every branch of his business, even to the minutest detail, he far surpasses the average keeper of a dozen hives. So well does he look after the details of his business that it would be difficult to inquire for any implement or article used, or rem-

nant left within a year, but that he could tell you where to find it.

As soon as possible after giving his bees a flight in the spring, he moves them away to his out-yards, which are situated from two to twelve miles from home. After this they are visited as often as may be necessary, at intervals varying from two days to two weeks. Usually, however, during the honey-gathering season, at some time between Monday morning and Saturday night, they are all seen. He hires a plot of ground on which to set them, and takes all the care of the bees. No one looks after issuing swarms, because he has no such swarms worth looking after. For some time after adopting the new Quinby hive he labored with Mr. Quinby to prevent swarming by giving shade, young queens, and plenty of room in surplus and brood apartments of the hive; and in 1868 he succeeded in preventing all increase from the 150 colonies then under experiment. What worked well in one season, however, did not succeed in all, and it was not until he practiced removing the queen that he was entirely successful in controlling swarming.

For some years he has used the T clamp and one-pound sections, glassed or unglassed, as the market demands. In the fall he moves his bees all back home, when they are weighed, their stores equalized, and they are prepared for winter. The principal forage at Cherry Valley is clover, basswood, and buckwheat, which last, being largely stored in the brood-apartment of the hive, usually insures sufficient stores for winter.

In connection with his last attempts at outdoor wintering, the captain experimented quite largely with plaster of Paris as a material for bee-hives, it being an excellent non-conductor of heat, and a good absorbent of moisture. But he soon discovered that, in common with the absorbents he had before used, in proportion as it became saturated with moisture it lost its non-conducting properties. He therefore, after the most thorough trial, abandoned, with almost all kind of hives and all kinds of packing, outdoor wintering, as unsuited to his severe climate, where a five-months' confinement to the hive is sometimes experienced. In this high mountainous region, successful wintering has been the most difficult point in practical bee-keeping, and perhaps always will be, as the honey-bee is indigenous to warmer climates, and, when removed to long winters, it does not bear confinement well unless every condition is perfect.

The captain finds it best in the fall to persistently weed out all swarms not up to a high standard of excellence. Some years as many as one-third are thrown out as unfit for the cellar. He takes personal supervision of this preparation for winter, and not long since he informed me that either he or his brother had examined every swarm as to quantity of bees and amount of honey. The writer, after spending some time in looking through his bee-yard, concluded this was the best lot of bees he ever saw. There were no second-quality swarms, and an old queen was the rare exception, for Hetherington has a decided preference for the first-year's work of a queen.

The captain is not at all satisfied with his wintering, notwithstanding his success of late has been much better than that of the average bee-keeper. In the spring of 1881 he took a carload of his weaker swarms as far south as Philadelphia, in order that they might avoid the chilling winds of the

North, and be benefited by the early forage and warmth of the South. The experiment was a success; but on account of wearing work he has since preferred to unite his weakest stocks early in the spring.

P. H. ELWOOD.

Starkville, N. Y.

To be continued.

THE CENTENNIAL HONEY-EXHIBIT.

DR. MASON'S PYRAMID OF HONEY; A GLIMPSE AT A FEW OF THE BIG BEE-GUNS.

FRRIEND ROOT:—Under the circumstances it seems to me that this picture, taken in a closed building, and with but little light, is a pretty good production for an amateur. It represents a portion of one of the honey exhibits at the Ohio Centennial at Columbus last fall, and is decorated by the faces of some bee-friends.

The man at the right is Mr. C. E. Jones, of Delaware, O., one of the exhibitors whose exhibit of

Mr. N. W. McLain, known to all your readers as the one having charge of the Government Apiarian Experimental Station in Illinois, and at his right sits "yours truly," who got a "racket" from Ernest because of his "wiggling" so as to spoil the face; but the splendid picture of the indefatigable worker, and editor of the *American Bee Journal*, Thos. G. Newman, makes up for any deficiency in mine.

In this picture, near the lower left-hand corner, is shown a portion of one of the side platforms on which the exhibits were placed. The wire poultry-netting, which I have mentioned before, is nicely shown, with three of the posts that held it up. Near the top of two of the posts were tacked cards of your \$1000 offer in regard to comb honey made by machinery. It seems to me it would be a good plan to have a goodly supply of these tacked up in conspicuous places at every exhibition of honey; and it might do no harm to have them on every crate of honey that leaves the producer's hands.



A PARTIAL VIEW OF THE APICULTURAL EXHIBIT AT THE COLUMBUS CENTENNIAL, WITH SOME OF THE PROMINENT BEE-MEN IN THE FOREGROUND.

comb honey, etc., I mentioned in my last; and to his left stands his little boy, Charley. Next to Mr. Jones is the one I have once mentioned as known by "our company" as "Uncle Aaron" Goodrich, of Worthington, O., an enthusiastic bee-keeper over 75 years old, one of the largest exhibitors, and who was awarded first premium on display of comb honey. Next to "Uncle Aaron" is shown Mr. J. Y. Detwiler, of New Smyrna, Florida, formerly of Toledo, O., who, at an expense of \$80, came to attend the meeting of the N. A. B. K. Soc'y, and to see the Exposition. He also acted as one of the judges in the Bee and Honey Department, H. D. Cutting, of Clinton, Mich., being the other judge. Whether it pays or not to attend bee-conventions unless one "has an ax to grind," as Mrs. Chaddock has said, Mr. Detwiler had no ax to grind, and he was one of the active ones in the convention. Next to him is

In this exhibit, a portion of which may be seen at the top, were shown about 150 honey-producing plants, mounted on strawboard, some of them being hidden from view by the persons in front, as was also a display of honey vinegar and different kinds of honey. Over Mr. Newman's left, and my right shoulder may be seen points of the nozzles of Bingham smokers, an assortment of all styles and sizes of which were here shown, with Bingham, Novice, Muth, and Murphy honey-knives. The Bingham smoker and honey-knife were awarded first premiums. In the lower left-hand corner is shown the gearing and a portion of the top of a Muth honey-extractor, exhibited by Dr. Besse.

The exhibit of honey shows for itself. The honey on the pyramid was linden (basswood), and, being very nicely candied, it made a pretty display, and was so frequently called sugar by visitors that

a sign was placed on it, as may be seen, which said, "Candied Honey. No Sugar Here." A few bottles of it had been drained and then stirred, so that not even an expert could tell that it was *not* sugar, without tasting. The editor of the *A. B. J.* refers to it in the number for Nov. 14, 1888, page 739. The pyramid was originally designed to be eight square; but as only about one-half of it would show, the back half was left off. The next week after the visit of those in attendance at the convention, your young man, W. B. Weed, took the pyramid in hand and decorated it and rearranged the honey, and made it a "thing of beauty." In the back concave side of the pyramid your men had a shelf on which they did their writing and kept their stationery, etc. In the rear of the straight shelves they had a bedroom and a wardrobe, the whole being inclosed by a door, as shown; and over the door, and but little shown in the picture, the sign, "Medina Headquarters." On the brace, near the upper central portion of the picture, a sign says, "Honey-producing Plants;" and above that another, on which may be seen, "Exhibited by Dr. A. B. Mason, Toledo, O."

To the left of this picture, and on the same platform, was a large exhibit of comb and extracted honey on shelves, 20 feet long, and extending nearly to the top of the side of the building. This belonged to "Uncle Aaron," whom I have before mentioned. In connection with this he made a fine display of very yellow beeswax, molded in different forms and sizes. It, of course, took the "red ribbon." He also had a display of five gallons of the lightest-colored honey vinegar I ever saw. It was as clear as the best water, and attracted much attention.

To the left of Uncle Aaron's exhibit was that of Dr. H. Besse, of Delaware, O., occupying 20 feet of the platform, and consisting of comb and extracted honey, beeswax in the form of round columns, foundation-mill, smokers, honey-knives, bee-literature, etc. On the platform in the center of the building I also exhibited a Given foundation-press on which foundation was occasionally made, to show people how it was done. Also a U. S. honey-extractor, with duplex reel; and being, as you know, an "extracted-honey man," I shall always want to have a honey-extractor along when showing extracted honey at fairs. I also had two single-comb nuclei with glass sides, so arranged on posts as to be readily turned to look on either side for the queen. On top of each was a sign, "Bees and Queens," and it took only an instant for some of us to gather a crowd around these nuclei, and start off in a "speech," giving a little of the natural history of the queen, workers, drones, etc., and we frequently had listeners that were very much interested in what we told, and would ask questions, and sometimes kindly thank us for the information we gave. Dr. Tinker, Mr. Elias Cole, and C. E. Jones, also had nuclei for showing queens, but they were not so conveniently arranged, as they had to be held, and were liable to be tipped over and broken.

The description of the exhibit in our department would not be complete without mention of your "one-piece section" machinery. Unfortunately for our display, this, in order to have power with which to operate it, had to be put in Power Hall, fully sixty rods. I should think, from the Bee and Honey building. It consisted of four new ma-

chines, placed in a space of 12 x 15 feet. An abundance of the very nicest basswood blocks had been prepared (in Medina, I suppose), dressed to the right thickness, and cut to the right length for sections and placed in boxes that would hold 500 sections. These blocks were first run through the machine that automatically makes the openings in the sides; then over the "gang" of saws that cut the notches in the ends; then the sections were cut from the side by a saw that left them almost, if not quite, as smooth as if they had been sandpapered. From this machine they were put into one that cut the V grooves. It was a marvel of ingenuity and simplicity, and it was "just fun" to see it work. All the attention it seemed to require was to have a lot of sections, few or many, placed within its reach, and it would, without watching, cut the V groove just right in every section, and drop the sections all complete, in a box ready to be packed for customers. A great many were given away as samples, and a large quantity of price lists were here judiciously distributed.

I am not aware that such an exhibit of bees, honey, and the appliances of the apiary, was ever before made in this country. It was a continuous display for forty days (Sunday excluded), and our building almost became a home to some of us. It was the regular sleeping-place for two of your men, Uncle Aaron, and myself, and Uncle Aaron and I "boarded" ourselves. Uncle Aaron gained in health and weight every day, and got a "new lease of life," which to a Christian man worth scores of thousands of dollars, was of more value than money; but to me the blessing came with a loss of over two pounds a week in weight, and I never felt better in my life. The loss of flesh in my case I attribute to *worry*. The boys "nagged" me, and poked fun at me, and laughed at me at every crook and turn; and visitors were not in the least loth to do the same. There seemed to be no end to my "putting my foot into it" (you know what that means) at the most inopportune times, and once I came pretty near getting a "licking" by a Chicago man (not our friend Newman), who knew more about "manufactured honey" than we did. I believe I must tell you about it. Owing to my getting so badly scared I may not get it just exactly as it was, but it will be near enough for all practical purposes. When any of "our boys" found out any thing new, or got "sold," or came across a specially hard or green customer, or one that probably never kept bees, or else kept them in the old-fashioned way, and knew more about them than we did, they were sure to bring such parties to me. Well, one day a company of ladies and gentlemen from Chicago were visiting our "neck of the woods," and one of the men was telling about having bought and used manufactured honey there ten years ago, and that "it was just as good as the honey made by bees." After talking with him awhile, and finding he knew more than I did, I *very mildly* suggested that it wasn't just right to be telling such stuff, as that way of making honey was "played out" in Chicago, and referred him to friend Newman. He rather excitedly said that he guessed a man had a right to say what he had a mind too. With as little discretion as truth I admitted it, but, unfortunately, added, "A man has a *right* to *lie* if he wants to." Well, his looks and actions induced me to get up from the seat I was occupying, and put down a package

of honey I had in my hands, and for an instant I didn't know but somebody would get hurt. He rather excitedly asked me, "Did you tell me I lied?" Did you ever! But I was in a fix. I simply replied that he didn't ask that question in the right way. So he took it back and wanted to know what he *should* say, and I very kindly informed him that he should say, "Did I understand you to say that I lied?" He at once repeated my words, and I very innocently replied that I did not *know* how he understood me. My reply showed my guilelessness, and his own company joined in the general laugh, and tried to get him away; but he seemed to have a liking for "our boys," and I asked them to let him stay with us awhile, assuring them that we would not hurt him, and would not even let our bees sting him if we could prevent them. So they all, except my friend, went of laughing and we gave them a cordial invitation to come and see us again. This was the only time, I believe, when there was a cloud on our horizon.

A. B. MASON.

Auburndale, O.

Well, old friend, it is too bad, and it makes one feel sad to think that those boys should have been so naughty as to nag and worry you in the way you mention. I do not blame them for laughing, because almost every one laughs as soon as he gets acquainted with you, and I did not know before that a man could be found with cheek enough to get mad, even if you did intimate to him that he was not telling the truth. I suppose you gave him one of those cards with the thousand-dollar offer on it, and that he went away thoroughly satisfied and thoroughly converted. I suppose a great many people went away from that honey-exhibit a little wiser in regard to this matter of adulteration, and I am inclined to think that you are about the best man to undertake the great task of getting such a great stream of humanity to give up error and accept truth. Our work is not done yet; and I hope, doctor, that you are still using your big gifts among the people wherever you meet them.

PREVENTING AFTER-SWARMS.

A. E. MANUM'S METHOD.

HAVING noticed in GLEANINGS and other bee-periodicals, from time to time, various plans to prevent second swarms, all of which I have tried without satisfactory results, and having finally adopted a method of my own which is somewhat different from any I have ever seen in print, I will, with your permission, give it to your readers, that another drop may be added to the great fountain of knowledge from which a clear and invigorating stream is constantly flowing over the pages of GLEANINGS.

As stated above, I have tried various plans to prevent second swarms by hiving in different ways, such as moving the old hive to a new stand, and hiving the new swarm on the old stand; also setting the old hive on the new swarm or the new one over the old; also hiving the swarms by themselves, and giving them a portion of the brood from the parent hive, etc. All of these have proved to be unsatisfactory to me, owing to the fact that these methods have a tendency to lessen the amount of surplus, since the old hive is so reduced

that it is a long while before it becomes strong enough to work in the boxes. Hence we have only the new swarm to depend upon for a surplus, where we depend wholly upon clover and basswood for box honey. I always aim to keep every colony strong—the ones that have cast a swarm, as well as the new ones. My experience teaches me that light swarms during the honey season give no profit. I would rather have half a bushel of bees in one hive than divided by two, hiving a peck in each hive, when the honey season is at hand.

In hiving bees, the plan that suits me best is to return one-third of the swarm to the old hive, and hive the remaining two-thirds in a new hive, and add to it, as soon as may be, one or more two-thirds swarms (without queens this time), each time returning the third of the bees to the hive from which they came. The surplus queens, if good ones, may be returned to their respective hives after cutting out all the queen-cells. By this method the old hive is kept well stocked with bees, and work in the boxes is but little interrupted; the new colonies are made very strong, and are in the best of condition to store a large amount of honey in the boxes. As I do not desire a large increase of colonies, I strive to secure a large surplus, regardless of increase.

To prevent second swarms I go to the hive four days after a swarm has issued, lift out the combs one by one, and cut out all queen-cells but one, leaving the best one if I wish to rear a queen from this stock; if not, all are cut out, and a cell from some other is introduced. Then in four days more I again cut out any queen-cells that may have been started, after which there is no danger of more being started. Now, when the young queen hatches and finds no rival, and the bees not being able to rear another, owing to the age of the brood, the young queen is permitted to leave the hive for fertilization, without the bees following her; and in due time she will commence to lay. But if the young queen is allowed to hatch *before* the other cells are removed, as recommended by some writers, even if the cells are removed very soon after the queen hatches, there is danger of a second swarm. But if all surplus cells are removed *before* the queen hatches, there is no danger of a second swarm; at least, that has been my experience the past few years.

One night last season my son reported six second swarms that day (this being only his second season in having charge of an apiary, and he had forgotten my instructions of the year before); upon inquiry I learned that he had not removed the cells the second time; or on the eighth day, thinking that, if he removed them soon after the young hatched from the cell left in the hive when looking them over on the fourth day after the swarm had issued it would be as well. But the result was six after-swarms in one day. I visited his yard next day, and assisted him to cut out the surplus cells from all that had swarmed seven or eight days previously, and cautioned him to attend to this matter in the future, which he did, and the result was no more second swarms.

It may be asked, why I cut out the cells so soon as the fourth day. My answer is, that it sometimes happens that a swarm is retarded from coming out, for some days, owing to bad weather or some other cause. In such a case the young queen will hatch sooner than the eighth or ninth day; hence this

precaution. As second swarms are unprofitable to me, I aim to prevent their issue; and by close attention I find they can be prevented.

Bristol, Vt., Mar. 12, 1889.

A. E. MANUM.

BEE-CAVES, AGAIN.

THE DOOLITTLE PLAN A SUCCESS.

AFTER reading Doolittle's article on bee-caves, in GLEANINGS, I am constrained to give my experience. I wintered, or tried to winter, bees on summer stands for eight years, and the result was far from being satisfactory.

In the fall of 1886 I made me a cave 8x16 feet, and 5 feet deep at the caves, in the ground. I put in a 3-inch drain-tile 50 feet long. To a suitable frame of studding and rafters I nailed inch lumber. Above and around I banked 3 feet of dirt, and then sowed with sweet clover. I have compartments in the rear end, 8x12 feet, and 4x8 in the front, for vegetables. There are three doors, including the trap-door, and an ordinary ground floor inside. When winter comes to stay (that is generally about Christmas), I fill the hatchway with straw, and shut it up till spring. A 3-inch pipe passes up through the top.

In the fall of 1886 I put in 42 colonies of bees. In the spring I took out 42 in fine condition; and what surprised me most was that the cave was dripping wet. I dug a hole in one corner of the cave, and I think I took out ten barrels of water in 15 days, and I could not detect any trace of dysentery about a single colony. In the fall of 1887 I put in 52 colonies, and next spring I took out 50 in prime condition. This time two died—one of which was queenless, and the other one starved from neglect in the fall. This time the cave was as wet as before, and two nuclei showed some signs of dysentery, and some of the bees were in the cave for just six months, from Oct. 15th to April 15th. This winter has been so warm that I have not filled the hatchway yet, and the cave is dry. I am in the cave almost every day. The bees are wintering well. I am convinced that a good cave is the place to winter bees in this latitude.

WHEN WE MAY EXPECT A GOOD HONEY CROP.

I want to tell your readers when to expect a good honey season (and that next year is one in Iowa, at least). My observation has been, that always, after a plentiful rainfall, the next year will be a good honey year; and a poor honey season always follows a dry season; a wet season gives the trees and herbs a good growth of fibrous roots, and this is what gives us a good supply of nectar.

Newbern, Iowa, Jan. 22, 1889. WM. MALONE.

It seems a little singular that somebody else should have almost exactly the same idea you have in your concluding sentence. See the following:

ESTIMATING THE SEASON IN ADVANCE, IN THE LIGHT OF THE PAST; IS IT A CASE OF COUNTING CHICKENS BEFORE THEY ARE HATCHED?

Bees have wintered well to date, March 1st. I have 177 hives. I believe every one is all right.

Why can't some kind of correct estimate be given in advance as to what the honey crop will be for the season? For example, the season of 1889, according to indications, will give us a good crop. Why do I think so? I will explain. In this locality, during the fall of 1885 we had frequent rains; white

clover thrived everywhere. The fall pasturage was excellent. In 1886 we got a good crop of white-clover honey. The fall of 1886 was very dry. The grass and white clover burned out, even to the root. Hardly any white clover made an appearance in 1887. The fall of 1887 was dry, drier, driest, and I got no honey whatever in 1888 from white clover. The summer of 1888 was a fine one. White clover sprouted up luxuriously everywhere—little fine stuff, just from the seed. During the fall of that year the weather couldn't be better. The pasture was the very best for stock. Even now the white clover is green and in splendid condition to furnish us a crop of honey. Why is it this subject of a prospect of a honey-yield is never discussed, or is it too much like counting chickens before they are hatched?

A. N. DRAPER.

Upper Alton, Ill.

LARGE OR SMALL HIVES—WHICH?

A NUT FOR THE ADVOCATES OF SMALL BROOD-CHAMBERS TO CRACK.

SO much has been said in favor of small brood-chambers, I concluded to give them a trial. I commenced the experiment in July, 1886, putting 20 colonies, that season, on ten frames, said frames 6¼ inches deep, and same length as L. frames. During the summer of 1887 I put some 35 or 40 colonies more on these shallow frames. This divided my apiary about equally—half on ten L. combs, and the other half on the shallow frames. The season of 1887 was extremely dry and hot. The nectar from the flowers was, from the nature of the weather, of a very thick consistency—so much so that it required constant care on the part of the apiarist, in manipulating hives, to prevent the bees from robbing. Yet I secured nearly 6000 lbs. of honey from 98 colonies, spring count.

The season of 1888 was just the reverse of that of 1887, both as regards the nature of the weather and the nectar in the flowers. For six weeks during July and August, 1888, there was very little disposition on the part of the bees to rob. But I obtained only 4500 lbs. of honey from 108 colonies, spring count.

Now for the results from the different sizes of brood-chambers. In 1887 there was but little difference, and that was in favor of the large hives. In 1888 the large hives not only gave me nearly three-fourths of the surplus obtained, but had an abundance for winter stores, while the small hives were quite light when placed in the cellar, and will have to be fed early in spring to carry them through.

I have for several years entertained a theory in regard to storing and evaporating the moisture from honey, and this theory is substantiated by the past two years' experience.

The statement that *all* the honey goes into the surplus receptacles when small brood-chambers are used is quite true, as there is no other place for it. But it is my opinion, that few if any of the advocates of small brood-chambers know how much they lose by not having sufficient room for storage and evaporation of nectar, especially when, from the nature of the weather, the nectar is very thin, as is often the case in wet seasons. Notwithstanding the many plausible arguments presented by able writers in favor of small brood-chambers, I

would not give my past two years' experience for whole volumes of such arguments. What would you think of the man who would set to work to produce 500 gallons of syrup per day, with an evaporating capacity of only 250 gallons per day? Somewhat ridiculous, is it not? Yet this is about the condition of affairs when put to the actual test.

Liverpool, Ill., Feb. 12, 1889.

S. A. SHUCK.

FUNCTION OF SALIVA.

PROF. COOK REPLIES.

I HAVE found no time before this to reply to the kind criticism of Mr. S. Corneil, in GLEANINGS, 1888, p. 931. I did say, in my first criticism of Cheshire's first volume, that the author's statement, that the "principal function of our saliva is to change starch into sugar, is a strange error." I am still of that opinion. I do not believe that any real experimental physiologist will disagree with me. I regret if my assertion in commenting upon Mr. Stachelhausen, that "we secrete saliva almost wholly to moisten our food," makes me appear *morbidly* sensitive. I really am not so. I am sensitive regarding what I deem erroneous. I have no feeling whatever in this matter, nor do I believe Mr. Corneil has, other than that the truth should prevail. If I said that Mr. Cheshire stated that the sole use of saliva was to digest, I certainly quoted from memory. He says its principal function is to chemically change some parts of our food, and notably starch. Again, I say, "Most English authors, and Foster with the rest, argue that saliva may do a great part of the work." Mr. Corneil adds, "What Foster does say is this: 'Its characteristic property is that of changing starch into sugar'—no arguing that it may do in this statement." Now let me quote Foster, page 184: "The chief purpose served by the saliva in digestion is to moisten the food, and to assist in mastication and deglutition." *This is its chief purpose.* That its characteristic property is to convert starch into sugar, is true. There is scarcely a better test for saliva. That is why I said, "That saliva will change hydrated or cooked starch into sugar, no one doubts." Now, Mr. Editor, let me briefly add what I believe to be just the truth in the case—what I have taught my students for years, not because I have read it in books, but because I have actually proved it, as do my students, and as Mr. Corneil can with no very great trouble or pains. Saliva of man, the pig, rabbit, guinea-pig, and the rat, is amylolytic; that is, it will digest starch, though far less actively, than does pancreatic juice. The same thing is very feebly true of the saliva of the cat, or horse, and sheep, while that of the dog is not so at all. But this is true of no saliva, except in an alkaline liquid. Thus, if we take cooked starch—only cooked or hydrated starch is acted on by any saliva—and simply put it into the mouth for a moment, a trace of sugar will appear. If, then, starch should remain in the mouth, and be mixed for some time with saliva, it would largely, perhaps wholly, change to sugar; but it stops only to be moistened, and is rushed forward to the stomach, where it is mixed with the acid gastric juice, and then the saliva is entirely powerless to digest the starch further. It did commence, but stopped before it had more than just begun. But when the starch reaches the

small intestine, and is mixed with the far more amylolytic pancreatic juice, it is speedily changed to sugar, or, in other words, digested. Now for the proofs:

First, only cooked starch is ever digested by saliva. The tropical man, then, who eats his starch raw, must depend wholly on other ferments for this digestion.

Second, feed a rabbit cooked starch. While we find a trace of sugar in the mouth, as we do in our own case, we find no more, only a mere trace, in the stomach. We see that, while the saliva has this property, it does not have this function. It can do it in an alkaline liquid—it can't in an acid one, like the juices of the stomach.

Third, while our saliva in the mouth will digest starch, and does very slightly, it will not do this if in a test-tube we add hydrochloric acid—the acid that makes the juices of the stomach acid; so we know that this change is at once cut short as the food enters the stomach.

Fourth, one element of the pancreatic juice does this work much more energetically than does the saliva, even in the mouth, and so there is no call for such action from the saliva, which is simply to moisten or soften the food, as Bernard's classic experiments showed years ago.

Fifth, the horse and cow eat much starch, and their saliva can't do this work. If the pancreatic juice does this for them, it would be logical to suppose that it does the same for all animals, especially as direct experiment proves that it can and does.

Sixth, the salivary glands and the saliva are as marked in dogs, cattle, horses, etc., as in man; but in these animals we know it does not digest starch. This, then, shows that the saliva has a separate function, which we know to be to soften the food.

I have made many experiments in this field, and have no doubt of the correctness of this position. I have suggested how others may prove the truth of it, as Fehling's test for sugar is simple, and easily applied.

We see that this matter in physiology is of practical importance. We must eat slowly, that the saliva may be thoroughly mixed with the food, and the food well cut up, else it will be impossible to digest the food properly when it arrives in the stomach and intestines. Bolting our food is not hygienic.

Agricultural College, Mich.

A. J. COOK.

HEART'S-EASE HONEY.

HOW IT GRADES WITH OTHER HONEY IN THE MARKET.

A SUBSCRIBER OF GLEANINGS writes me as follows: "Please tell through GLEANINGS how heart's-ease honey grades in Chicago, as compared with white clover, linden, etc. It is considered A 1 here among farmers. . . . Do you think I could do as well with the extractor? Do you think extracted as profitable as comb? Also, what do commission men generally charge per pound? Three short crops can be secured here in one season—first, white clover; second, basswood (by moving bees 3½ miles); third, heart's-ease."

The honey gathered from heart's-ease is not as light-colored as that from white clover or linden, and has a somewhat stronger flavor. A well-ripened article, though, when granulated, looks almost as white as clover. It granulates in very fine crys-

tals, forming a smooth, even grain, perfectly dry, but not quite as hard as a good article of clover. Let me remark, in passing, that I do not consider any honey first-class unless it will candy so as to be hard and perfectly dry.

The comb made from heart's-ease is as white and delicate as any made. In most of our markets I believe it is usually graded and sold as white clover. With many dealers, all comb honey that is nice and white is white clover, while all that appears dark is buckwheat. This, to some extent, is true of extracted honey. Nearly all honey produced is from sources more or less mixed, according to the season and locality in which it was gathered. If you ask any large dealer in honey for samples of white clover you may get several different flavors, none of which you will recognize as the white clover of your locality. This being the case, there is a tendency among dealers to class all honey, that is reasonably light in color and mild in flavor, as white clover. A friend of whom I bought some honey almost entirely of heart's-ease, writes that a well-known Chicago dealer said of some more of the same lot, "It seems to be almost entirely white clover."

Tastes differ as to quality. Some do not like the flavor, others prefer it to any other variety, while some never learn to distinguish any difference between it and other kinds. A bee-keeper of some years' experience admitted to me not long ago that the only kind of honey she could positively distinguish by the flavor was that from sweet clover.

Heart's-ease honey has one serious fault. It is injured more easily, and to a greater extent, by overheating than any other kind I am acquainted with. The heat of boiling water, if the whole mass is heated up to that point, will utterly ruin it, giving it a flavor and odor that reminds me of an infusion of hay. Unless consumers are made aware of this fact, unpleasant results may follow. It will be seen that it is not fit for cooking purposes, as the "hay tea" flavor is not generally liked. The nectar from heart's-ease seems thicker than that from most plants. This was particularly the case last season, when it seemed ready to cap over almost as soon as it was brought in. On this account I do not think it as profitable in the extracted form as in comb.

As to the relative profit of producing comb or extracted honey, I would refer my correspondent to my article on the subject on page 691 of GLEANINGS for 1887. No one can be certain, until he tries it, which will pay him best; but in the majority of cases, comb honey will be found more profitable. With regard to the rest of the letter, commission men generally charge 5 per cent on sales, though in some places 10 per cent is charged. If my correspondent makes a success of moving his bees, especially for the basswood flow, I hope he will report on it. We do not know nearly as much on the subject as we ought to. I believe it is destined to play an important part in the bee-keeping of the future.

HONEY IN PAPER PACKAGES.

You will remember the article I wrote on small paper packages for extracted honey. I send you some of these by this mail. The honey is not very good in quality, being a mixture of various sorts, and the paper in which it is wrapped is simply GLEANINGS paper. I hope it will reach you without damage. It seems to me that something might

be done in this way to furnish a market for a great deal of honey.

J. A. GREEN.

Dayton, Ill., Mar. 9, 1889.

The candied honey in little packages looks very pretty, only it is somewhat sticky. This may be remedied, however, by wrapping it up in paraffine paper, exactly as we get caramels from the confectioner's. I presume a very choice grade of honey would sell well as confectionery, but it would be considerable trouble and expense to put it up in these packages; and if a trade is once started it will be greatly crippled or perhaps killed by using an inferior article. If I am correct, some honey candies in a good deal better shape than others. Small packages, say one inch square or less, would probably keep their shape, and be neat to handle. If not sold immediately, however, I am a little afraid that it would look old and uninviting.

MANIPULATING CHAFF HIVES, AND PREVENTING SECOND SWARMS.

GEO. E. HILTON GIVES A FEW FACTS IN FAVOR OF CHAFF AROUND THE BROOD-NEST.

THE great bugbear held up against chaff hives is their weight in manipulation. Having always used chaff hives I have learned it is unnecessary to move them after they are once placed upon their stands, which (i. e., the stands) should be substantial. For this purpose I like a rim made of 2 x 4 oak, or some timber that does not rot easily. When the chaff hives are once on their stands they certainly possess advantages that the single-walled hives do not. Bees will certainly build up faster upon less stores in the spring, and are less liable to spring dwindling. When the heat of summer comes on, your surplus receptacles are better protected from the scorching sun without the use of shade-boards; the brood-nest is more comfortable, and when bees in single-walled hives are lying out and doing nothing for fear of melting their combs, bees in chaff hives are busily at work; and I have yet to have the first comb break down in them.

In manipulating the surplus there is less stooping, and, as a consequence, less backache; and with both kinds in the yard for the past ten years, I have received enough more honey from the chaff hive to pay for their extra cost. They are always ready for winter by simply putting on a chaff cushion when you remove your surplus crates in the fall. There is less swarming than in the single-walled hives, for the same reason that they work when those in the single-walled hives do not. They are more successfully handled against second swarming. When a swarm issues I lift off the surplus cases and set them on top of the next hive, lift off 7 of the 8 frames, and place them with the adhering bees in an empty hive. I then put in seven frames of foundation (in the parent hive), replace my surplus cases, and by this time the swarm has clustered. I next shake what I can of the swarm into my hiving-basket, invariably getting the queen the first time, and then dump them upon the alighting-board, and the work is done. As the remaining bees will soon return to the parent hive, and all the field bees giving you the same working force as before, with energies redoubled, look out for your surplus room, for the queen will occupy

the foundation as fast as drawn. Your seven frames are so depleted (with yet enough bees to care for the brood) that they will not swarm one time in ten, and your honey will all come from the parent hive, and you will have fewer unfinished sections, unless you get a fall flow, as we did the past season when I had to extract the brood-nests to give the young queens room to lay. In my locality I save all the first swarms up to Aug. 1, and have never yet failed to have them in good condition for winter.

When I read of some of the methods used in manipulating the single-walled hives in securing honey, and in the prevention of second swarms, I fear that I should need a book-keeper to keep things straight. With me it is all done at one operation, and I have no further thoughts in the matter. It is a success, both in the production of honey and the prevention of second swarms.

Fremont, Mich.

GEO. E. HILTON.

Why, friend H., it seems to me a little funny to have you indorse the chaff hive in the vehement way in which you do. Your ideas are mine exactly when I invented our present method of making chaff hives; and my experience in all these years agrees exactly with yours. Now, it seems to me that those who have been so vehement—yes, and I might almost say *bitter*—in denouncing the chaff hive should remember there are quite a few who think just as you and I do. Some have objected to the chaff hive because it is inconvenient for handling the combs; and it surprised me when I heard it, for I find the chaff hive the most convenient, even for queen-rearing, of any hive I ever had any thing to do with; and it is because I can lean against it when handling the combs, and support myself without pushing it over or off its foundation. When working with the Simplicity hives I am obliged to lean over the hive and work in a leaning position, without any thing to support me; and I have always found that, when I go from a Simplicity hive to a chaff hive, especially when I am tired, that the chaff hive rests me just because I can lean my whole weight against it while I lift out the combs; and I want the old-fashioned two-story chaff hive, just as I first made it. In your method of working you do not say what you do with the combs and adhering bees that you lifted out; but I suppose they are taken away to make another colony. We have not found this very good economy unless we get some working bees from some other new swarm to put with them; otherwise there will not be any pollen or honey brought from the fields for nearly a week.

THWARTING ROBBERS.

ALSO SOMETHING ABOUT THE SIZE OF THE BROOD-CHAMBER.

LAST August I received a letter from H. L. Jeffrey, of New Milford, Conn., in which he said, "I must send you a trick that I have tried many times at this season of the year, or I should say this time of honey-dearth. Several years ago I was handling a stock that was being robbed. The bottom-board of the hive projected about 4 or 5 inches in front. The stock was

quite demoralized, and were all over the ground, and the robbers were going in and coming out like mad demons. I looked at them for a moment, then around, and, seeing some sticks half an inch thick, and a shingle about 6 inches wide that had been used over the combs the previous winter, I just put the half-inch sticks at each end of the alighting-board, then the shingle on top, and pushed it tight to the front of the hive; and, wasn't it fun to see those robbers try to go through the front of the hive? the robbers inside coming out from under the shingle, and unable to find their way back, and at the same time the demoralized bees belonging to the hive were quietly crawling back and leisurely walking under the shingle, as cool as though enjoying the sight of the acrobatic exercise their defeated plunderers were taking."

Mr. Jeffrey found the plan to work equally well in subsequent trials. I was so unfortunate (or, rather, so fortunate) as to have no case of robbing last season after getting his letter; but from the well-known habits of bees, I think the plan well worth trying, even if Mr. Jeffrey's long experience did not give me confidence in his decision. The whole affair is very simple. The entrance from the outside is closed, and a new entrance made, while the exit remains practically unchanged. The robbers remain, frantically attempting to force an entrance at the one spot, while the bees belonging to the hive are more inclined to hunt for another entrance.

HIVE FOR COMB HONEY.

A correspondent writes: "Please answer through GLEANINGS what size of frame, size of super inside, and size of hive inside, also how many frames to hive, and what size of section you would use if you were going to adopt a hive for comb honey. Would you want it larger for extracted honey if two stories are used?"

The frame I am now using and have been using for a good many years is 18 x 9. I do not know that any different size would give better results, although it must be remembered that for a long time I have used no other size, and am likely to be prejudiced. I would not adopt that size, however, if I were beginning anew, for the simple reason that I don't want a size different from every one's else, unless there is strong reason for it. The size of the Simplicity-Langstroth frame is only $\frac{1}{8}$ inch shorter and $\frac{1}{2}$ inch deeper—so nearly the same that, for practical purposes, there is no difference, and so I should prefer that which is used by many others, instead of having an odd size. I think I should prefer a hive to take eight of these frames, thus making a hive 18 inches long and 11 $\frac{1}{2}$ inches wide, inside measure. I would use the common 1-lb. section, 4 $\frac{1}{4}$ x 4 $\frac{1}{4}$, to go in a T super measuring inside 17 $\frac{3}{8}$ x 12 $\frac{1}{8}$ x 4 $\frac{3}{8}$.

I am not authority on extracted honey, but I do not think I would have a different size of hive, if I expected to use some hives for comb and some for extracted. If, however, I intended to raise no comb honey, but extracted altogether, I should do some pretty heavy studying or experimenting to see if a ten-frame hive might not be best.

Marengo, Ill.

C. C. MILLER.

The idea of a shingle or other thin board, supported on narrow strips over the entrance, is quite old, and a pane of glass in place of the shingle seems to answer still better. If robbers are acting very bad, the

shingle would have to be fastened down with small nails; but an ordinary pane of glass has weight enough to keep its place. I think that prevention in case of robbing is much better than cure; but after they do get to going, the idea is often valuable. It is my opinion that such cases of robbing have more to do with bees being voted a nuisance in a neighborhood than any other one thing.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

EARLY HATCHING.

MY bees are situated on a western exposure of a hill. March 17th they carried in the first natural pollen that we could see. One colony was not carrying pollen. Concluding that that colony was queenless, I opened the hive and found neither brood, larvæ, nor eggs. I then searched for the queen, and found a young one, white as a corpse, certainly not five minutes old. I pushed aside the little cluster of bees where she was, and found two capped queen-cells, and one with its "coffee-pot lid" open where the young queen had just come out. I watched her a few minutes, when she dipped her nose into a cell and started out over the comb. About the queen-cells I found two or three cells of capped brood. Apparently the old queen had just lived until about March 1st, then laid six or seven eggs, and died. As there are no drones flying, and the weather is very bad, I think the chances are against this queen being fertilized, and I shall lose the colony, as it is too weak to raise a new queen from eggs in April. At least, I fear it is too weak to raise good queens. think St. Patrick's Day in the afternoon is rather early for young queens in this latitude.

PHILO S. DILWORTH.

Bonney, Pa., March 21, 1889.

SORGHUM MOLASSES TO FEED BEES IN SPRING.

Please tell me whether sorghum molasses or syrup is fit to feed bees in the spring. Of course, I know it would be unsafe to give it in the fall for winter supplies, but I thought it might be good in the spring to feed up to stimulate queens, etc.

Worthington, Ind., Feb. 5, 1889. J. A. MINICH.

Sorghum molasses will do for spring feeding whenever the bees fly freely; that is, providing the bees will pay any attention to it. Unless the quality of the sorghum is quite good, and no honey of any sort is to be had in the fields, bees will seldom work on it. During a drouth in the fall, when we are keeping nuclei going for the purpose of raising queens, sorghum molasses will often answer a very good purpose. It is so distasteful to bees that they seldom care enough for it to start robbing, and in this respect it is much better than honey.

THE NON-REVERSING EXTRACTOR, AND WHAT MR. COWAN SAYS ABOUT IT.

We take pleasure in making the following extract from a private letter received from our brother-editor, Mr. Thos. Wm. Cowan, of the *British Bee Journal*, relative to the non-reversing extractor mentioned and described on pages 683 and 773 for 1888:

I was interested in your taking up the honey-extractor to extract from both sides at one operation. I have been looking forward to remarks from others. The diagram of one you have made is very nearly exactly the same as the one I made and used, and was described in the *British Bee Journal*. If you like I will send you the extract referring to it. The reason I gave it up at that time was because the combs got damaged unless great care was taken, and it was not safe to put it into the hands of careless people. You know we did not have wired frames, and new combs heavy with honey used to become crushed up toward the top-bar, which was on the outside circle, and toward which the centrifugal force pressed them. With old combs, such a thing would not happen. Otherwise the honey was extracted without any difficulty. This extractor is still in existence, and is in the collection of appliances I presented to the British Beekeepers' Association.

THOS. WM. COWAN.

Boulevard Grancy, Lausanne, Switz., Dec. 22, 1888.

ARE BLACKS MORE HARDY THAN ITALIANS?

Which are the best bees to winter, in your opinion? My gray bees are wintering all right. The hives are just full of bees, but the Italians are all dying. A week ago to-day my bees had a good fly, and the Italians would crawl out and get a chill and die.

Deshler, O., Feb. 23, 1889.

T. OBERHITNER.

As a rule, blacks are not more hardy than Italians. The two races of bees, however, are so different in their habits that it is not unfrequent to find one wintering better than the other. For instance, while the blacks are working on buckwheat, the Italians will often be working on red clover; and in this case the difference in the kind of stores might make a difference in wintering. Italians will also sometimes work on honey-dew while the blacks will not, and I should think likely that that is the trouble in your case. Warm weather, that will enable the Italians to fly, will probably fetch them up all right.

HOW TO MAKE A START IN BEE-KEEPING.

I want to get started in the bee-business again, on a very small scale. A number of years ago I bought your A B C and got two hives of bees; but the bees and my bright hopes, one by one, took flight and left me "weeping sad and lonely." There are only black bees around here, and the owners ask \$7.00 per hive for them. But I have not that much to throw away, as my John says. We have all kinds of fruit, large and small, which our neighbors' bees thrive on from the first cherry blossom in May till the last raspberry in August. If I must gather bees by the handful while picking raspberries, I am quite sure that I could do it with greater equanimity if I knew that some of them were my own. Your advice in the A B C is to get two or three pounds of black bees and a fertilized Italian queen. Is that still your advice? If so, I can get the black bees here.

MRS. C. H. TARBELL.

Bedford, N. H., Mar. 12, 1889.

Yes, my friend, that is still our advice. Almost everybody can get bees of some sort near home; and all you have to do is to get such a queen as you want, by mail; and queens are carried by mail safer and quicker than hives of bees, even by express.

WASTE FELT VS. CHAFF, FOR PACKING.

Friend Root:—I want to talk to you a little more in reference to the sample of packing I sent you, in hopes it may be of some benefit to some bee-keeper in this vicinity and other places where fur-hat factories are easily accessible. You reply, the great objection to it is the expense, and on that account you prefer chaff, especially wheat chaff. In this locality we can't get wheat chaff, as comparatively no wheat is raised in this vicinity, and the best chaff we can procure is oat chaff, which I have always used until the last one or two seasons. But after using this waste—like sample sent you—I think it much superior; and the only objection I have to it is, that the fur and hair stick to the clothes, and it is quite a bother to get it off. As far as the expense is concerned, it costs no more than chaff. It is the waste from the shaving machine, use in the manufacture of fur hats, and is composed of fur and hair. Now, if any bee-keeper in the vicinity of a fur-hat factory will go to the factory and get this waste to pack his bees in, I am sure he would decide with me that it far excels chaff. It costs nothing. The manufacturers are generally glad to have it taken away.

S. H. HICKOK.

Bethel, Conn., Feb. 9, 1889.

We have no doubt, friend H., but that the waste from hat-factories will answer as well as chaff; but the great objection to it is, that there are very few bee-keepers indeed who are so situated as you are, to get this kind of packing; and the number of bee-keepers who can *not* get some sort of chaff is comparatively small.

THE WORK OF MICE IN THE HIVES.

I went into the winter with 16 colonies, after uniting and giving, as I supposed, plenty of stores to carry them through; but I find I am taken right back where I was one year ago, as I have nine colonies left to date, all very strong and fair. We are told in the A B C that mice are enemies of bees. We try to guard against them, but mice had been in no less than five colonies of the 7 lost—the first time that a mouse ever got into a colony of my bees. You see, the entrances get large by the action of the weather, and the passing of the bees in and out. That thing will never occur again with me; however, I think on the whole more stores have been required to bring bees thus far than any other winter since I have had bees.

Hinckley, O., Mar. 15, 1889.

A. A. WEBBER.

THE WARNER PARALLEL GAUGE; QUESTIONS CONCERNING IT.

Are the rods or screws of Warner's improvement to saw-tables, for regulating the gauge, long enough so that the gauge can be set as much as two feet from the saw with a gauge $3\frac{1}{2}$ inches wide, or how long are they? I often use the parallel gauge to cut off with, and want to cut my bottom-boards two feet long; does this attachment still work well? Do you still sell them, and at what price?

Le Sueur Center, Minn.

R. KENDALL.

Friend K., the screws in the Warner parallel gauge, such as we send out, are 26 inches long. The gauge itself can be set 24 inches from the saw; but if so arranged it will not come near enough to saw sections, brood-frames, or other thin stuff, without putting a straight piece of plank of suitable width on the face side of the gauge. On our

regular section saw-tables, such as we use in our factory, the screws are shorter. When so arranged, the gauge can come in contact with the saw itself, if necessary, or be set back 22 inches. The Warner parallel bar and screw attachment is the best arrangement of the kind we have ever used. A few quick jerks of the chain will cause the gauge to be set at any point. One of its chief merits is, that it can be adjusted to a hair's breadth, if not *exactly* at the point desired. With the old parallel gauge it was very difficult to get an exact adjustment. We use these screw gauges in our factory exclusively now. We sell them with screw, chain, and every thing complete, for \$5.00.

TO INCREASE THE SIZE OF WORKERS BY INCREASED SIZE OF CELLS NOT A SUCCESS.

Some time since there was a good deal of discussion as to whether we could not increase the size of worker bees by making comb foundation a little larger than the regular size. Last spring in looking over my hives I found in one of them that had a good deal of drone comb a queen (I have had them before that would not lay a drone egg nor make any preparations to swarm during the swarming season) that had not laid a drone egg; but being pressed for room she had filled three drone combs with worker brood—no mistake; 30 years in handling bees has made me familiar with the difference between a worker and a drone. Those workers were no larger for being raised in drone-cells.

HOW TO MAKE SMOKER-LIGHTERS.

A great convenience in the apiary, is rolling up paper balls the size of marbles, putting about an inch of oil in, in a quart can, filling it up with the paper marbles, and you have the best and quickest lighters for your smokers that you can possibly have; by making them the size of a large egg, you have a good one for the kitchen stove. A Mr. Wilson said to me a few days ago that you can clean your smoker of soot very easily if you put some salt on the fire which you make to clean it.

Los Gatos, Cal.

S. S. BUTLER.

You are right about the matter of enlarging bees by giving them larger cells. Facts similar to those you have given have been sent in repeatedly; but for all that, every little while somebody invents over again the idea of enlarging the cells.

EXCLUSIVE TERRITORY. OVERSTOCKING, AND WHO IS TO BLAME FOR IT?

I fear my article on "exclusive territory" is not quite understood by the readers of GLEANINGS. Numerous propositions have been made from time to time by different people to secure exclusive territory by legislation. I was bitterly opposed to any law that would work injustice to the poor, therefore I wrote my article on "exclusive territory." I said the only fair way to secure such rights was by purchase, rather than by legislation. I do not believe in monopoly of any kind, where it will operate against the poor, not even patent bee-hives. Personally I have no faith in the feasibility or advisability of exclusive territory. I think it would be cheaper to move to a location where there are not so many bees than to try to buy out the neighborhood. Bee-keepers are themselves much to blame for the overstocking of some locations. A man gets a new variety of chickens, and he makes

haste to sell hatching eggs to all his neighbors at "two dollars a sitting." Before he is well aware of it he finds everybody crowded with that kind of chickens and he himself trying to trade his fine eggs at nine cents a dozen to the village grocer for molasses and stale cheese. Just so in the bee-business. A man gets a few bees, and hastens to advertise "Bees and Queens for Sale." He discounts his future profits for present benefits, and shortly finds all his neighbors in the bee-business, the locality overstocked, and his honey begging for a market.

PHILO S. DILWORTH.

Pittsburgh, Pa., March 5, 1889.

I also am opposed to any monopoly that works injustice to the poor, and I also believe that the way to secure exclusive territory is to make a contract with your neighbors not to keep bees if you can do so; and I still think that, in many neighborhoods, this can be accomplished. If we are going to raise forage for bees, and have a honey-farm, it would be of the utmost importance that the adjoining farms should agree not to keep bees. Why can't it be managed as well as they manage the matter of making leases when drilling for gas and oil? Before men go to the expense of sinking a well, they very carefully lease the land adjoining, so as to have the control of the locality in case it should be found to be a valuable one. Now, while it is true that the man who gets a new kind of poultry may stock the neighborhood until he runs the price down, I think great good comes from this kind of work, many times, without getting the price down, or, if you choose, *before* the price gets down. Surely it is better to buy choice stock of any kind of your neighbors than to send away off to a distance, pay heavy express charges, and then get something you have not seen before handing over your money. In the same way I believe it pays most bee-keepers to advertise bees and queens for sale. Now, none of you need accuse me of saying the above from selfish interests, because I have just advised very strongly trading with your neighbors instead of sending away off to a distance; and I do think that bees and queens had very much better be bought near your own home, than to send away off, take the risks of heavy charges, damage in transportation, and may be getting foul brood besides. When it is impossible to get what you really need, in your own neighborhood, why, then, of course, you can call in the aid of the express and freight companies.

HOUSE-FLIES, AGAIN.

A subscriber from Ohio says he finds myriads of flies in his horse manure in winter. He says that, as the eggs were laid last summer, drawing the manure out in winter would freeze out the insects. This is not true. The house-fly hibernates in winter—this is genuine hibernation; so eggs will be laid next spring. This explains why flies are scarce in early spring and summer. They breed rapidly, and become very numerous by fall. The same subscriber says: A neighbor drew out all his manure in winter. Soon his manure heap was full of house-flies, yet all was made in the last two weeks. An explanation is asked for. I answer, there is some mistake. House-flies do not breed in

winter, and all insects come from eggs; thus if flies were seen they came from eggs laid last autumn. Hence either the manure was not drawn out clean, or else some old manure, or rubbish with eggs, was thrown out with the manure. Flies do not lay eggs in winter, in the North. All insects come from eggs. Any observations that seem to contradict these statements need to be repeated.

Agricultural College, Mich.

A. J. COOK.

I think your explanation is correct, friend Cook. When our friend wrote me, it did not occur to me that the eggs laid by flies might remain several weeks or months, until the temperature was right. If this is so, it will account for the presence of larvæ in the manure, which I presume has been observed by many, even during the winter time.

THAT QUEEN OF MRS. CHADDOCK'S UNDER A GOBLET; DOES A SWARM EVER ABSCOND WITHOUT THE QUEEN?

Friend Root:—I think Mabala B. Chaddock owes a word of explanation in regard to what she says on page 89 about 4 swarms of bees going to the woods, and leaving their queens under a goblet on a plate. Now, does she mean that those bees went off without any queen, and set up housekeeping in the woods, without any queen? If she does, then she has "downed" Langstroth, Quinby, and A. I. Root as effectually as she did A. J. Cook in regard to the color and scent of flowers. These fathers of apiculture have taught the young American that no swarm of bees will leave without the queen, and my experience has proved the correctness of their theory. Now, if sister C. has made the discovery that a swarm of bees will abscond without a queen, what is the use of clipping the wing to prevent absconding? or did the bees know that the queen's wing was not clipped, and the good woman of the house had her under a glass goblet, and that she would let her go in a few days, and that she would follow them to their new home, and by that time they would have house-cleaning done ready to receive her ladyship?

The way I keep the bees from putting propolis in the beveled joints is not to have any beveled joints, but use a hive with square joints, like the old-style Heddon hive, thereby obviating the use of tallow, chisel, and hatchet; but if I had bevel-joint hives to sell I might recommend the use of tallow and oil to prevent the bees from gluing them together.

Sherman, Ill., Feb. 6, 1889.

D. D. COPER.

Friend C., we *did* not understand Mrs. Chaddock to say that four swarms went off to the woods, leaving their queens under a goblet. No doubt one of the queens was under the goblet; but the other three ought to answer for even four swarms—that is, if they went to the woods *en masse*. Mrs. Chaddock did not make her point very clear about the four swarms that went to the woods.—Your last sentence, it seems to me, makes out that you are a "badder man" than bee-keepers in general. I know there are some men who would sell a thing that they knew was worthless, and a hindrance to their fellows, if they could make money by it. Surely there are not many such among the readers of GLEANINGS; and I do not believe there are many who believe the *editor* would set the example. We furnish

any kind of hive that anybody wants; and we sometimes make Simplicity hives with square joints instead of beveled ones, where the brethren think they prefer them that way. But 100 of our customers prefer them with the bevels, where one asks to have them square. Bee-hives without the bevels were the rule before the Simplicity was invented, and they are to be found even yet, more or less, in almost every apiary. Langstroth, you will remember, adopted the plan of having the upper story slip over the lower one in order to keep out the wind and rain, and to keep the upper story in its place. I thought this took too much lumber, and, besides, I objected to hives with projections. When I used Langstroth hives exclusively, I could get only three hives of bees into my one-horse wagon. The portico stuck out in the way, the rim around the outer edges stuck out in the way, the upper story stuck out in the way, and the covers also stuck out in the way, and got bumped loose, letting the bees out to sting my horse. After I invented the Simplicity I could set eight hives of bees in my one-horse wagon and take them to a buckwheat field, without the top stories slipping off from the lower ones, or the covers getting slipped off or bumped off. When I wanted to pile my empty hives up under shelter, the Simplicity ties could be placed one on top of the other, covers, bottom-boards, and all, clear up to the ceiling. The next tier would go up tight against it, so that it was very much like putting the hives in the wagon. A certain size of room that would hold only eight or ten Langstroth hives would hold twenty or thirty Simplicitys. Now, if anybody wants to go back to the old style—if they want hives without the bevels, or even if they want box hives, we shall be glad to serve them.

DOES WILLOW PRODUCE HONEY?

I have ten colonies of bees in chaff hives of my own make. One colony made 96 lbs. of comb honey last summer. I should like to know for certain whether yellow willow produces honey. I have watched the bees at work on them, but never saw them get any pollen. I think this is conclusive evidence they get honey; and by the way they worked I think they were getting it in pretty large quantities. Would it pay those living by streams of water to set out some branches? They would save the banks, and give the bees work.

W. A. WILLIAMSON.

Friendly, W. Va., Feb. 11, 1889.

Your evidence seems pretty clear, friend W., that bees do get honey from the willow. In our vicinity, willow hedges were put out, perhaps 25 years ago, to a considerable extent. During favorable seasons bees do sometimes work considerably on these willows; but as a rule I think they amount to but little. Perhaps this is because they are not of the variety that yields honey most.

BEEES IN TOWN.

I have been taking GLEANINGS for three years. I can hardly do without it. I am a beginner with bees. I had good luck with them, but did not get much honey last year, on account of dry weather. I put away 28 colonies in winter quarters, under a

shed, and filled in with sawdust. The weather has been very warm here. We have had no cold weather as yet. I live in a town of about 30,000 inhabitants.

B. M. HUBLE.

Wallaceburg, Ont., Can.

Bees do very well in town; in fact, a great many bee-keepers have their colonies inside of the corporation limits. Occasionally there is trouble with neighbors; but usually it is a case of ill will from other causes. Most of such troubles can be avoided by occasionally presenting your neighbor with a nice sample of honey.

REPORTS ENCOURAGING.

ENCOURAGING FROM A. E. MANUM.

BEEES in this section of the State are, we think, wintering nicely, as the winter has been very mild for this climate. They had a very fine clearing flight on Jan. 17th and 18th, and also March 5th and 6th. On the 6th I opened a few hives and found, to my great delight, that but very little of their stores had been consumed, and the bees appeared to be in a healthy condition, with but a few dead bees on the bottom-board. We are very hopeful that this coming season will prove to be one of our old-time honey seasons, as clover made a very fine growth last fall, also the bass-woods made an excellent growth of new wood during last summer, which indicates a full bloom the coming season.

A. E. MANUM.

Bristol, Vt., Mar. 14, 1889.

55 GALLONS OF CHUNK HONEY FROM 11 COLONIES.

I bought a place in this county, and moved to it in the fall of 1887, and with the place I got a few hives (9, I believe) of hybrid bees, in a bad condition, "robbed almost to death," including the spring swarms. After the last winter "starve outs" I have 11 hives, mostly Simplicity. I did not have time to work with them much, nor the foundation to straighten their combs; and having sold my extractor before moving, I decided to "let 'em rip." I did not weigh the honey, but the vessel's capacity that it filled was 55 gallons, "chunk honey," as the A B C would call it. My bees went into winter with plenty of stores, and are now rearing brood very nicely.

W. M. WOOLSEY.

Floresville, Tex., Mar. 2, 1889.

LARGE VERSUS SMALL HIVES; \$1600 AS THE CASH PRODUCT FOR ONE SEASON.

I have 260 colonies, in hives containing 800 inches of comb surface. I use two of them for a hive, and have managed for the last eight years on exactly the plan that Dr. Tinker generously offered to give free to the bee-keepers, in the *American Bee Journal* lately. I like the plan, and secured seven tons of comb honey by it this poor year. I cashed it long ago for \$1600. I know that, with the hives and system I now use, the best results are reached with one-half the work in summer management, as compared with the common hives and system. I am wintering 260 swarms in two apiaries.

B. TAYLOR.

Forestville, Minn., Feb. 5, 1889.

First swarm of the season came out Feb. 15th.

Sara Sota, Fla., Feb. 17, 1889.

S. C. CORWIN.

From 4 stands in the spring, I increased to 30, and secured surplus in sections, 1000 lbs.

Edina, Mo., Mar. 12, 1889.

J. M. LONG.

I had 13 hives, spring count; increased to 22; extracted 100 gallons of honey; sold it at 75 cents per gallon.

S. C. CHARD.

Luling, Tex., Jan. 18, 1889.

FROM 19 TO 44; 13 QUEENS AND 840 LBS. OF HONEY SOLD.

In 1888 I commenced in the spring with 19, and increased to 44, fall count. I sold 13 queens, and took 840 lbs. of honey.

J. W. TAYLOR.

Ozan, Ark., Jan. 13, 1889.

FROM 26 TO 48, AND 5100 LBS. OF HONEY.

My account with the bees for 1888 is as follows: I started in the spring with 26 colonies; increased them to 48, and obtained 5100 lbs. of honey—1400 lbs. comb, and 3700 of extracted.

Salt Lake City, Utah.

WM. G. ADAMSON.

3850 LBS. OF HONEY FROM 50 COLONIES, SPRING COUNT.

During 1888 we secured from 50 colonies, spring count, 3850 lbs. of comb honey—an average per colony of 77 lbs.

JOHN AND JAMES COWE.

Goodland, Mich., March 7, 1889.

PROSPECTS GOOD; FROM 18 TO 22, AND 1000 LBS. OF HONEY.

I commenced the season with 18 stands of bees; increased to 22, and obtained 1000 lbs. of comb honey in 1-lb. sections.

J. B. RIGGENS.

Swanton, Neb., Feb. 18, 1889.

A POOR SEASON, BUT 3000 LBS.

Last year was not very favorable. I got 3000 lbs. of honey this year. I am wintering 100 swarms in a cave. Thus far it has been very warm in the cellar. It is colder and snowing to-day. Thirty colonies are out of doors.

T. KOULO.

Portville, N. Y.

WINTERED WELL, AND GATHERING POLLEN.

My bees wintered very well on winter stands. The majority of the hives are full of bees, and they have all been gathering pollen for the last three days, from black elder. I have 25 colonies, all in good condition.

S. YINGST.

Sydney, Pa., Mar. 18, 1889.

ENCOURAGING FOR CALIFORNIA—SEE PAGE 207.

I have just finished trimming and plowing my orchard. The peach-trees are commencing to bloom, and the oranges are getting nice and ripe. I noticed the bees bringing in pollen to-day, and the queens commencing to lay. So far we have had 11 inches of rain, and the grass and weeds are growing very fast. We must have an abundance of both early and late rains, however, to insure a good honey crop.

J. F. MCINTYRE.

Fillmore, Cal., Jan. 7, 1889.

THE FIRST POLLEN.

How pleasing to the eye and ear to witness the return of the first pollen-laden bees of the season! How eagerly they rush out, and how business-like they march in, after reaching the alighting-board! Such a sight I had the pleasure of witnessing to-day. My 100 colonies have all wintered, and are in good shape, but are rather short of stores, the mild winter being the cause of a greater consumption of stores than usual.

W. H. LAWS.

Lavaca, Ark., Feb. 14, 1889.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

BEES DYING OFF IN EARLY SPRING.

I HAVE 3 hives of bees, and on warm days the bees come out in big lots, and die. What can I do for them?

JAMES M. SMITH.

Perkiomenville, Pa., Mar. 4, 1889.

[Those bees which fly out and do not return are probably old bees. They probably would not be of very much service to the colony any way, and would likely die in the hives if not outdoors before actual weather comes on. Apiarists generally calculate on having some of these old bees, at least, die early in the spring. They will accumulate on the bottom-board if the colony is in the cellar, or will fly out on the first sunny day if on their summer stands packed in chaff.]

WHY WE DISPENSE WITH THE TIN RABBIT IN THE DOVETAILED HIVE.

I like your dovetailed hive, as shown in GLEANINGS for Mar. 1, but I don't understand why you do not use the tin strip, or rabbit, for frames to rest upon, as it renders the manipulation of the frames much more rapid.

R. Q. KING.

Springfield, O., Mar. 6, 1889.

[Because the majority of the honey-producers, those who are extensive bee-keepers, prefer to dispense with the tin rabbit, for the very reason that the latter allow the frames to shuck about too much in transportation from one out-apiary to another. Hives having frames resting on wood bearings require no special provision to hold the frames in moving. See Question-Box, this issue.]

WHAT IS A FAIR COMMISSION FOR SELLING HONEY?

I am starting a home market for selling my honey. Most of the groceries in this town sell it for me. I furnish every thing, show-cases and paper-boxes, stands, and cases for extracted honey, and all they have to do is to sell it out. Now, the question is, what per cent do you think is right to allow the grocers for selling it for me?

MRS. W. G. TITTSWORTH.

Avoca, Ia., March 3, 1889.

[Under the circumstances I think that 5 or 10 per cent would be all your groceryman should charge; but friend Heddon and some others have suggested that grocerymen will work much harder to make sales, and to work honey off, where they have from 20 to 25 per cent, than where they get only from 5 to 10.]

CAN CHLOROFORM BE USED SAFELY ON BEES?

I lately read an article, saying that chloroform might be used with safety in quieting bees, when handling them; but I thought best to refer to you before making the attempt; and as I presume other readers of GLEANINGS would like your opinion, would you please give it through the columns of your excellent magazine?

MRS. S. ALLCOCK.

Ashtabula, O., Mar. 12, 1889.

[Bees can be chloroformed so that they will fall down on the bottom-board, or stick to the combs, apparently dead. The idea is very old; but I believe that one after another who have tried it have decided they would much rather have live bees to manipulate than dead ones. Smoke is very much handier and cheaper, and at the same time accomplishes the purpose far better than chloroform.]

61 BUSHELS OF JAPANESE BUCKWHEAT FROM 24 LBS. OF SEED.

I bought a bushel of Japanese buckwheat of you last spring; sold half of it to a neighbor, and sowed the remainder, just 24 lbs. It made a wonderful growth of straw, and was, without exception, the

nicest field of grain I ever saw. Bees did not work on it to any profit, and the seasons are far between that buckwheat amounts to much in this vicinity, for honey. The frost came early, damaging the crop of grain at least one-third. I harvested 61½ bushels, heaping measure at that.

Norwich, N. Y.

W. B. NORTON.

THE TARANTULA A GREAT JUMPER.

In GLEANINGS, p. 123, is a drawing of a tarantula. There are some here at least twice as large as the drawing (it may have dried and shrunk before it was received by Prof. Cook), but these will attack any one who molests them. I have seen them jump twelve or fifteen inches high, and eighteen to twenty inches in a single jump; and I believe Prof. Cook would think there was danger when one would jump several times after him and clear eighteen inches each jump.

S. H. COLWICK.

Norse, Tex., Feb. 26, 1889.

WOULDN'T STAY IN THEIR NEW HOME.

I bought a swarm of bees from a tree last summer, and brought them home and divided them and put one part in one small hive of Italians, and the other half in another stronger colony. The last half contained the queen from the tree. I supposed the Italians would kill the black queen, but they stayed in the hive until after 12 o'clock, then every black bee came out and ran away with their queen.

H. J. HANCOCK.

Siloam Springs, Ark., Feb. 22, 1889.

[It is never safe to presume that the bees will kill one of the queens, for they quite often behave just as you have described.]

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper and marked, "For Our Question-Box."

QUESTION 115.—*a. If you were obliged to keep the same number of brood-frames in a hive the year round, how many L. frames would you use in working for comb honey? b. For extracted?*

b. 24.

R. WILKIN.

Eight.

H. R. BOARDMAN.

a. Seven; b. ten.

G. M. DOOLITTLE.

Eight; sixteen.

A. J. COOK.

a. b. Eight frames.

GEO. GRIMM.

a. Eight; b. nine.

MRS. L. HARRISON.

I use ten for both.

P. L. VIALLO.

a. Eight; b. ten in the lower story.

O. O. POPPLETON.

Seven for comb honey and sixteen for extracted.

E. E. HASTY.

Not less than ten, both for extracted or comb. We prefer 11 or 12.

DADANT & SON.

I believe I would use ten for either comb or extracted honey.

A. B. MASON.

With my present knowledge I am inclined to think a. eight; b. ten.

C. C. MILLER.

For comb 8, and winter in the cellar. For extracted 24, and winter outdoors (on 16).

E. FRANCE.

If I were obliged to start anew, and to use L.

frames, I would make all hives to hold eight frames. For extracted honey alone, I would a little rather use ten frames.

JAMES A. GREEN.

a. If I were using the kind of hive in which I was obliged to retain the same number of frames continually, I should like it to hold the equivalent of about seven of our 10½x16 frames. b. I wouldn't consent to any such arrangement for extracted honey.

P. H. ELWOOD.

For boxing, 9. If the question means that no other combs are to be used for surplus in extracting, I would not advise trying to secure extracted honey, as more box honey could be secured than one could expect of extracted. If surplus combs are to be added by tiering up, I would use the same number in both cases.

L. C. ROOT.

If I were obliged, I would keep 10 frames in the brood-chamber, no difference if my object were comb or extracted honey, because from a large brood-chamber I expect a large colony, more honey, and fewer swarms; while from a small brood-chamber, only a small colony can be expected, less honey and more swarms. If I should keep a certain number of frames all the year round, my standing as a bee-keeper would not be above the level of an old fogey.

C. F. MUTH.

Should not your question read, "Brood-frames in the brood-chamber" instead of "in the hive"? The hive combines the whole arrangement, both brood and surplus departments. In the brood-chamber I would use just eight L. frames, no more and no less. I speak assuredly on this subject, for I have given it very extensive tests on a large scale, the question being a hobby of mine for years. There are advantages in having a large brood-chamber, but there are also disadvantages, which amount to more than the advantages, unless the brood-chamber is horizontally divisible. I speak for both comb and extracted honey, and of the brood-chamber strictly.

JAMES HEDDON.

I suppose the above question was intended to call forth opinions in regard to the matter of a hive made wide enough to hold eight or ten frames. Father Langstroth decided on ten; but almost immediately certain parties thought eight was sufficient. A great many who made a business of selling bees at so much a colony preferred eight, because they are easier to handle. Of late, however, there has been so much said about having a chaff division-board outside for winter, and then a dummy to contract the space when the bees are storing honey in sections in the summer time, that a great many of us have been obliged to ask whether a hive wide enough to hold eight frames is not enough. Of course, there is danger of letting bees starve where we have only eight combs in the brood-chamber or lower story; and a good many will prefer a hive to hold ten frames on this account. An eight-comb hive is easier to handle, because you do not have to reach so far over. There is also quite a saving in expense, because a narrower board will do for covers and bottoms, and they are less trouble to handle. The bees are also more likely to put all their surplus honey in the sections above, for there is but little room to store it below when the combs are well filled with brood.

With an eight-frame hive, however, we must many times begin feeding as soon as the surplus honey is removed from above. This is especially the case with black bees; so you see, friends, it depends much on the kind of man as to the number of combs we should have in the brood-chamber.

QUESTION 116.—*Do you prefer the closed end or hanging frame? Give reasons.*

I have never used any closed-end frames.

O. O. POPPLETON.

Hanging frames, because they are so much easier to work with.

P. L. VIALLO.

The hanging frame, on account of greater ease of manipulation and less injury to bees.

R. WILKIN.

I use and prefer the L. hanging frame, and prefer it for ease of manipulation.

MRS. L. HARRISON.

Hanging frames. I think they are more easily handled, and more perfect in their adjustment.

H. R. BOARDMAN.

I prefer the hanging frame. There are many reasons, but chief among them is ease of manipulation.

GEO. GRIMM.

Hanging for L. frames—that is, in a common L. hive; the combs can be moved so as to make room to get out the first frame.

E. FRANCE.

Hanging frames. Principally because they are more easily manipulated, and are not so liable to kill bees during manipulation.

G. M. DOOLITTLE.

I prefer a hanging frame, for I work mostly for extracted honey, and I want to remove them readily. In my locality, or perhaps I should say with my bees, every thing gets glued fast that it is possible for them to fasten.

A. B. MASON.

Hanging. I think I should like the warmth of the closed ends, but I think the hanging frames so much easier to handle, and it is possible to move them so as to vary their distances apart. I must confess, however, that I never had much experience with closed ends.

C. C. MILLER.

I prefer the hanging frame. To gain entrance to the other kind is too much like breaking into a burglar-proof safe; and to get out of the scrape and close up, one adds wholesale murder to burglary. Possibly familiarity with some better form of the closed-end frame would mollify me somewhat; but I do not think I shall ever be won over.

E. E. HASTY.

We have tried the closed-end frames, but we killed and enraged bees every time we opened the hives. At one time we crushed a valuable queen, and then resolved never to use these frames again. The theory of manipulating hives instead of frames can not hold with the pure Italian bees, which cling to the combs so much that it is impossible to shake them off.

DADANT & SON.

I want neither closed ends nor closed top-bars to my frames, because a glance will tell me where, in winter or spring, the cluster is, or where I may find the queen. No bees need be killed by taking out or replacing the frames, which can not be avoided if the frames have closed ends or closed top-bars, not to speak of the slower, unhandier process of manipulation with the latter.

CHAS. F. MUTH.

Hanging. Greater ease and convenience of handling. I am still in doubt about the Heddon hive. While it is certainly an admirable hive for the expert, I am not so sure for the beginner. I am not ready to recommend it yet for all.

A. J. COOK.

I prefer the closed-end frame, because it is better to winter and spring bees in, because it can be as easily and rapidly manipulated as any, and it kills as few bees as hanging frames, and because it is the best hive for moving bees in. The new Quinby hive, which we use, can also be contracted to suit the requirements of the smallest colony, or enlarged for the strongest, without any extra division-boards or extra pieces.

P. H. ELWOOD.

I prefer the closed-end frames as used in connection with the new hive; and my reasons in general are, that, with the arrangement, I received the numerous advantages long ago claimed which only closed-end frames can give, and at the same time do away with the past objections to closed-end frames which really overcame their advantages as compared with hanging frames. I deem this department too limited in space to go into an enumeration, or describe all the advantages and disadvantages.

JAMES HEDDON.

I very much prefer the closed-end frame, whether standing or hanging. The first reason is the fact that each space retains its own warmth so much more than when open; and I find, when tested side by side, that, in early spring, I can build up light stocks that would be lost with the open-end frame. Capt. Hetherington once said to me, that he had saved 100 stocks of bees that spring that would have been lost had he used the open-end frame. I believe one of the greatest secrets of success in Julius Hoffman's management is in his use of a frame closed part way down with enameled cloth, pressed down upon the top of the frames.

L. C. ROOT.

I prefer a closed-end frame for my use. Such a frame is, perhaps, not advisable for one who is rearing queens or selling bees by the pound, nor for the learner to gain knowledge and experience most easily. But for the production of honey as a business, in large apiaries, by those who have already served their apprenticeship, I believe closed-end frames have decided advantages. While they are not as movable as metal-cornered hanging frames, they are sufficiently movable for all practical purposes, and they are immovable when you want them so. A hive full of combs may be handled as though it were a single piece instead of a collection of loose pieces, thus saving work, worry, and time. You are not obliged to stop to space the frames every time they are handled. When a swarm is hived in them you know the frames are at the proper distance, and can not slide together, producing crooked combs. If you use foundation in wired frames, your combs will all be built straight, even if the hive should not stand exactly plumb. In carrying, handling, hauling, or shipping, the frames do not need to be fastened, yet can not slide together, killing bees and queens.

JAMES A. GREEN.

Before I read any of the answers to the above question I knew pretty well how it would go. Out of 18 answers, 14 are in favor of hanging frames; but the other 4 are men of such wide experience and reputation

as honey-producers as Elwood, L. C. Root, Heddon, and friend Green. Perhaps friend Green has not produced the crops of honey that the other three have, but he is a bright, progressive young bee-keeper. I am a little astonished at him because I didn't know that he used the closed-end frames at all. Were we in a convention I should be a little fearful that we might have some speeches in regard to this matter that would be a little unkind. Perhaps not, however, for conventions of late years have got into a way of being very courteous and charitable, even though some few should have ways of working, and ideas, that seem to the larger number beyond comprehension. I can readily understand why a bee-keeper should consider the closed-end frames best; and I can readily imagine how Capt. Hetherington saved 100 colonies by having closed-end frames; but I confess I can not understand why our good friend Elwood can say the closed-end frame "can be as easily and as rapidly manipulated as any." Now, I do not mean to dispute this statement at all, mind you; and I can readily believe that, with his long practice with them, he can get along faster himself than with hanging frames; but I very much doubt whether those of us who have always used hanging frames could ever learn to work closed-end frames as rapidly as he does. I have long been thinking of visiting our friends in York State, in the height of the honey-flow; and perhaps I may some time have the pleasure of seeing our good friend Elwood work; not this season, however, for I have promised to visit the basswood fields of Wisconsin.

QUESTION 117.—*If you use all-wood frames, do you prefer to have them hang on metal rabbets or on a plain wood bearing, in the production of honey?*

There is little difference. DADANT & SON.

On metal rabbets every time. O. O. POPPLETON.

I prefer them to hang on a metal bearing.

L. C. ROOT.

I should prefer a metal rabbet, with Hoffman frame, as next best to an all-cased end.

P. H. ELWOOD.

On a plain wood bearing. Then they are always ready to haul, without fastening the frames.

C. C. MILLER.

I use the all-wood frames hanging on tin rabbets—too much propolis to have frames on wood bearings.

P. L. VIALLO.

I would never have metal corners, and on the whole I think I would not have even metal rabbets. I have only wooden rabbets now.

A. J. COOK.

I use all-wood frames hung on wood bearings. Metal rabbets are a source of constant annoyance to me, and the few that I had I have discarded.

GEO. GRIMM.

We use all-wood frames, with wood bearings. I don't see how either way can make any difference in the amount or quality of the honey.

E. FRANCE.

I use the wood-bearing. After years of experience along this line, I think there is little difference in favor of either kind of bearing, when taking all things into consideration.

G. M. DOOLITTLE.

I use metal rabbets, and could not be induced to go back to the wood-bearing.

A. B. MASON.

Metal rabbets, by all means—and I use metal corners too. If we believe in movable frames, let's have movable frames, and no swindle about it.

E. E. HASTY.

With either hanging or fixed frames I always use all wood; but when I use the hanging frames I prefer a plain wood rabbet in the brood-chamber, and a simple metal rest in the extracting supers.

JAMES HEDDON.

I use wood bearing, for the reason that I have the bearings notched for spacing the frames; then my frames are always the proper distance apart. Frames hanging on metal rabbets are easier to manipulate.

MRS. L. HARRISON.

There is not much difference between a rabbet of wood or one of metal; but I prefer my all-wood frame to rest on a metal rabbet, but not on the sharp edge of the tin. I do not want my frames to rest on a plain wood bearing.

CHAS. F. MUTH.

I prefer to have them on metal rabbets, especially in the upper story. I do hate to be prying frames loose every time I have to move them; but in lifting off the upper story I sometimes wish the lower frames were held down by propolis.

R. WILKIN.

I always used metal rabbets with the ordinary hanging frames; but with the closed-end frames I find them unnecessary. The ordinary all-wood frame in a wooden rabbet is not as readily handled as a properly made closed-end frame, yet it is not as secure as the latter.

JAMES A. GREEN.

All the hives that I now have in use have the metal rabbets; but I am almost tempted to say that, if I had it to do over again, I'd have none of them in my hives. It takes a long time to find out, sometimes, the real value of an "improvement."

H. R. BOARDMAN.

This question, too, like the one before it, depends much on what one is going to do with his bees. If he is going to raise queens, I feel quite certain that he will make money by having metal rabbets and metal corners. If he is going to raise comb honey, and have out-apiaries, so that the bees are to be frequently moved several miles, I think quite likely he does not need either metal rabbets or metal corners; and it would not be surprising to me if he ultimately decided on a closed-end frame, especially if he is working for comb honey. I have visited many beekeepers of late years, who say they have hives in their apiaries from which the brood-combs have not been removed in years. If that is the way we are going to manage, we can not only dispense with metal rabbets, but we may have closed-end frames, and a few have been bold enough to say there is no particular need that we should have frames at all—just have a shallow brood-chamber, something like Heddon's, and let the combs be built in solid. So you see that much depends on the habits of the owner, and what he is working for. To tell the truth, I, years ago, planned a box hive. You will find it in the old volumes of GLEANINGS, and I have studied on the matter considerably at different times of late years.

OUR HOMES.

Thy way is in the sea, and thy path in the great waters, and thy footsteps are not known.—Ps. 77:19.

CONTINUED FROM LAST ISSUE.

THE friends will remember that I left off at our last issue where the guide was just ready to take me to the cave. The strong door was unlocked, and the guide handed me a lamp. Just then, however, I remembered that I was thirsty; and as I did not want to travel through the cave in that condition, I asked the guide if we could find any water to drink, in the cavern. He replied there was none. Furthermore, there was none at the office by the entrance. He said the only thing they had was some Manitou spring water, in bottles—15 cents a bottle. Don't be uncharitable, dear friends. That is about the way they do things at all these fashionable resorts. I decided, however, to pay the price, even if the water does run away in a quantity large enough to run a small sawmill, right at the foot of the mountain every day in the year. As it happened the water was bottled from the same spring I tasted the day before, that I thought was not very good. The cork flew out of the bottle with a pop that might have satisfied any schoolboy; and as the guide poured it into the glass, it fairly smoked and sparkled with foam. Good? Why, my friends, it was about the most delicious drink I ever tasted in my life. Don't ever say again that *stolen* waters are sweet. They will not compare with that which has been honestly paid for, and the thirst for it earned by hard work in climbing mountains, and, above all, taken with a clear conscience, and with thanksgiving to God, the great creator of the mountains and springs, and all the wide universe. While I remarked that one glass was plenty for the time being, I noticed he corked the bottle and set it down by the side of the telescope. The water is so pungent you can take only a swallow at a time. He says they have an arrangement for bottling it under pressure before it reaches the surface of the ground.

And now for the Manitou Cavern. It is much like Mammoth Cave, only on a smaller scale. Before we had gone into the mountain many feet I uttered exclamations of surprise at the beautiful white alabaster icicles, for that comes nearest in description of any thing I can think of. Each icicle had a drop of crystal water hanging to its tip, and these drops of water glistened like so many stars. Where the water trickles down them fast enough to fall off, stalagmites are seen right under them. The very old ones have grown brown and gray with age; but the new ones are glossy, and bright with the liquid that encases them and makes them grow. Of course, like every one else I wanted one to take home as a specimen. But the guide told me that, if they had not decided to shut down on every demand of this kind, their cave would have been ruined in no time. I admitted this, and yet it seemed rather hard that I could not have just *one* little one. Well, a good many

times the guide takes a dozen or more people in at once. Some of them, of course, will persist in loitering behind, and these are the chaps who snap off the icicles, and carry them away. In fact, during this past season the matter has become so bad that they have been obliged to cover all the finest ones with a protection of poultry netting. I confess that the sight of the netting around these beautiful products of nature does not seem to be just in harmony; but what are they to do? The guide stuck his cane through one of the openings in the netting, and gave one of those beautiful icicles a rap. I supposed that he would, of course, send it flying. But instead of that it rang out like a bell—the sound echoing and reverberating away through the galleries of the cavern. Again and again he struck others in the same way. They did not break, but every one of them gave forth a musical note. Some of them sounded like a silver bell, and this is the peculiar feature of Manitou Cavern. Further on, the impregnated water had run down the side of the cavern, and coated it with a polished covering.

"This is what we call the 'Wet Blanket,'" said the guide; and he hit it a clip with his cane. It rang out, too, like a great bell. During the wet season of the year this impregnated water sometimes forms pools on the floor; and as it runs over the edges it forms this white alabaster stone. As it rises higher and higher it makes the edge of it a basin, with many islands in the center, all incased in alabaster. As we passed under some vast domes above, that seemed to go away up toward the top of the mountain, a reverberating roar, rising and falling like the tones of an æolian harp, arrested my attention. I stopped and asked for an explanation. He said it was a sort of echo or reverberation of the sounds in the cave. I could not be satisfied, however. I gazed up at the rocky vault above, then up one gallery and down another, and finally I began to consider a sort of quizzical look on the face of my guide.

"Look here, old chap, you are humbugging me a little. Aren't you making that sound with your mouth?"

He laughed, and admitted that he was. But I forgave him, especially as it was so wonderful to think that a feeble human voice could awaken such a frightful roar as that. The guide is something of a musician, as I will tell you presently, and he had discovered that, by striking the keynote of that dome, he could almost make the whole mountain vibrate, as it were. As it is a difficult matter to keep his voice in perfect unison with the vibrations of the dome, he would occasionally waver to a little lower note and then higher, and thus caused the roar to rise and fall, in a way that seems almost startling. We now came to some wooden seats, and the guide asked me to sit down while he gave us some music. As I composed the whole audience, I spread myself, as it were, to do justice to the occasion. He climbed some stairs to a grotto above and some distance away from me. Then he remarked, by way of apology,

that dame Nature had not builded their organ exactly as he would like to have it, therefore he was obliged to do the best he could under the circumstances. I was fully agape, not only with eyes, but mouth wide open. Said organ was only a collection of stalactites, but, to tell the truth, it did look somewhat like a great pipe-organ. Some of the bass pipes were perhaps a foot through, old and gray with age, while the highest notes were made by striking with his cane some of the smaller delicate white icicles, such as I have described, and I tell you the music was not only funny but good. The heavy bass was not quite in tune, but it rather added to the performance to hear some of those great fellows "grunt," as it were, their part of the melody. I believe he played five different pieces in all—Green-ville, Yankee Doodle, and a simple melody for which I know no name except that we used to call it "My Father and Mother were Irish."

saw the Cauliflower Garden, where dame Nature is growing cauliflowers of alabaster. They just grew up, and were all formed from a damp rock. Alabaster stars were growing on the walls of the cavern in many places where it is damp, and I am told that a damp fog that is seen in some places deposits this white carbonate of lime on the walls and ceilings of the cavern. Many other things not mentioned here were not particularly different from Mammoth Cave, in Kentucky. This cavern, however, is so high up in the mountain that there are no rivers or lakes such as Mammoth Cave furnishes. Its special attraction is the beauty of the stalactitic formations. Many of them are so translucent, that, when your lamp is held on the opposite side, they look very much like a coal of fire, and every one of them, big and little, gives forth these musical notes.

When I got out of the cave I was ready for the rest of that spring water, corked up



THE PIPE-ORGAN OF MANITOU GRAND CAVERN.

The concluding piece on the organ was an imitation of the Swiss bell-ringers, and some parts of it were almost complete. If you shut your eyes you would imagine you saw the performers as they threw their bells on the table and picked up others during a rapid performance; and yet he does it all with simply a couple of sticks, selecting the proper stalactite from among the confused group, just as nature has placed them. I clapped my hands and stamped my feet, but I felt that I was not able to do justice to the occasion.

On our way out we passed the North Star, which shone from the depths of a cavern to which we could not well gain access. The guide explained it as simply a drop of water on the bottom of a stalactite. Then I

in the bottle. I also had another good look through the telescope. Although the building is very securely made, right on the rock, every footstep on the floor shook the instrument so that Pike's Peak seemed toppling as if they had an earthquake. When I spoke about going to the top of it, the guide said no one could get up there at that season of the year. The rocks and every thing else were covered with ice, and it was intensely cold. When I reminded him of the smoke coming from the chimney, he said the U. S. Signal Service requires a man to stay there for the purpose of scientific observation. Down the mountain I started again, and ere long I was at the foot of Rainbow Falls. Now, although the sun shone forth brightly, and the water poured

over the fall to my full satisfaction, not a speck of a rainbow could I see. Perhaps it was not the right time of day.

Before ten o'clock I was down in the town again. As I passed a livery stable I asked them how low they could give me a horse and buggy to drive over to the Garden of the Gods. Their very best figures were \$3.00. When I expostulated a little in regard to \$3.00 for two hours' time, they kindly consented to let me stay till half-past twelve. That was the greatest concession I could get. I remembered the time when I saved a dollar an hour in walking home, when the train left me; and just now it occurred to me that I could make more than a dollar an hour, and I did not feel tired one bit. I started off on foot, and alone—no, not alone, for with every step I took in that strange weird place, I felt *God's presence, his peace, and his love* in my heart, and I was *exceedingly happy*.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

ALL ABOUT RAISING SWEET-POTATO PLANTS; ALSO VERY COMPLETE DIRECTIONS FOR MAKING HOT-BEDS FOR STARTING VEGETABLE-PLANTS OF ANY KIND.

IN answer to my inquiry, a short time ago, for a paper on raising sweet-potato plants, 32 very good papers were sent in. These were carefully read over, and portions of a good many were used, besides using some of the communications entire, as you will observe. I aimed to give all the valuable points communicated, and at the same time avoid as much as possible all repetition. As these papers come all the way from as far south as Mississippi, and clear up to Michigan in the North, it is quite interesting to notice the varied methods adopted in consequence of the difference in climate. We start out with a paper from a friend in Michigan.

HOW TO GROW SWEET-POTATO PLANTS IN MICHIGAN.

Friend Root:—I have been growing sweet-potato plants more or less all my life, and here, for 24 years past, frequently 100,000 plants in a year. I used to live in Southern Illinois, where we grew plants readily without glass, using boards or any kind of covering at night and in stormy days, and leaving the beds open in day time when the weather was fair. Of course, the time for bedding the potatoes will need to be varied so as to suit each man's locality.

Good seed potatoes are of the first importance; and if not already on hand they should be ordered of a reliable party, as near by as possible, so that they need not be long in transit. Most reliable seedsmen will furnish such potatoes as are best suited for bedding-out purposes; but on no condition buy potatoes that have been exposed for sale in the city markets, as they are liable to have been so chilled as to cause them to rot, as they will not safely bear a lower temperature than 38°.

I usually bed sweet potatoes about April 15th to 20th, and order potatoes shipped a few days earlier, so as to have them ready at the desired time. If the weather is not favorable delay it a few days, as

exposure to cold in shipping is risky. Use fresh horse manure for making the bed; that is, such as has not already been heated and the heat expended. It should be prepared a week or ten days before the bed is wanted, by piling it up and moistening it, if not already moist, so that the heat will become thorough and uniform throughout the pile by the desired time.

If the ground is porous, so that it will not hold water, a pit may be dug, 18 in. or 2 ft. deep, into which the manure should be evenly spread and carefully packed down, so that it will not settle out of shape, and so that the heat will be uniform as possible. A frame of the desired size made of any cheap lumber that will not warp badly, should be set over the pit or bed of manure. This frame should be about 9 inches deep in front, and 15 on the back (the end pieces being sloped to match), so that the sash will have pitch enough to shed water. In this frame fill three or four inches of good fine soil, evenly spread directly on the manure; then place the sash on the frame, and, after the heat has become uniform, and is found to be all right—usually in two or three days—the potatoes should be placed evenly over the surface of the bed—not quite touching each other, and covered with two or three inches more of good fine soil that will not bake—a sandy soil is preferred; then replace the sash and keep a close watch that it does not become hot enough to burn the potatoes. I have never used a thermometer, but I judge of the temperature by thrusting my fingers down through the soil in various places. Sweet potatoes require a strong bottom heat at the start as they are liable to rot. Just so it is safely below the burning-point is all right.

I use sash 3x6 ft., and four of these sash will cover a bed 6x12 ft., which will usually afford accommodation for one barrel of potatoes, if they are of about an average size. If small, more room will be required. I seldom split potatoes, as they are more liable to rot; but if large, so as to require splitting, the round side should be placed down. One bushel of good seed sweet potatoes should give 5000 good plants, if every thing goes well, and the plants are removed as fast as ready; sometimes more than that number, but oftener less.

After the potatoes are placed in the bed, and the sash are on, constant care must be exercised to see that every thing goes right. The bed will require airing more or less every day from 8 or 9 A. M., to 4 or 5 P. M., especially if the sun shines; but they should be closed during the night; and if it is cold enough to freeze, the sash should be covered with mats, old carpet, or any thing that will protect from the cold during cold nights or stormy days. As the season advances, and the weather becomes warmer, the sash should be removed entirely during the warm part of the day. If this is neglected, the plants will become "drawn"—that is, tender and worthless for planting. About a week after the potatoes have been planted they will begin to throw out roots and show signs of growth, at which time the bed should be well sprinkled with water, and this repeated as often as necessary to keep the ground in good moist condition. As the bed fills up with plants, a large amount of water will be required, usually a painful under each sash every evening, if the weather is sunny and warm. Good plants will usually be ready in three or four weeks from the time of bedding the potatoes.

If the ground is such that a pit would hold water better, make the bed entirely above ground, simply banking up to prevent the escape of heat from the sides of the bed, or a frame may be made deep enough to contain both the manure and the soil under and over the potatoes. D. C. EDMISTON.

Adrian, Mich., Feb. 25, 1889.

KEEPING SWEET POTATOES FOR SEED AND FOR PLANTS.

First, dig sweet potatoes, intended for seed or for keeping, before any frost kills the vines. Dig on a clear day, if possible, so the tubers may dry well; after lying in the sunshine, remove to an out-room and spread out to cure and evaporate superabundant moisture. Should quite cool weather come on, cover with old blankets or carpet. On no account must the temperature of the tubers get down to 32°, or you will not need a hot-bed for that lot of tubers. On approach of freezing weather we pack in barrels and remove to a room that is warmed so as to not fall below about 40°, keeping the barrels open to air. They are packed in the barrels as apples are, with no packing between them. They should be handled so as to bruise as little as possible. We remove our seed tubers to the sitting-room which is warmed pretty regularly all winter, on the approach of severe weather. We generally keep about two barrels of tubers over for seed, and seldom lose more than $\frac{1}{4}$ bushel out of the lot. I have repeatedly tried keeping tubers in my cellar, a very nice dry warm one, but they invariably rotted before spring.

About the last week in March we get our hot-beds ready, using forest-leaves and strawy manure, principally leaves, as we have them in abundance close at hand, and the process of fermentation and heating goes on much slower, and lasts much longer, than with all straw manure. We tramp this heating material down a foot deep at least, and cover with about 5 inches of soil, composed of pure sand, woods-earth, and coal-braes from old charcoal-pits. I presume any good rich loam will answer, the blacker the better, as it will absorb the sun heat better. Put on sash and heat up; and as soon as the ground is warm through, which can be found out by running the hand down in the soil, put in the tubers, sinking them at least 1½ inches below the surface. Give the beds all the sun heat they can get, even until they fairly steam. Sweet potatoes will not germinate well unless kept very warm and moist. If plants come on too soon for your market, pull off as soon as 5 or 6 inches long, and "heel in" in nice fine earth, keeping shaded and wetted for a few days until they strike root, after which they are the best for transplanting. Should they be kept too long in this condition they will commence forming little tubers, after which they are useless for planting, as they will not throw out a second set of tubers. I would especially caution against using such plants. The large tubers we place in the hot-beds by themselves to sprout; and, as soon as started, we split them in two, plant the cut side downward, so as not to have long dangling plants. If large tubers are cut in halves before they begin to sprout they are liable to rot. I would on no account cut them before. Tubers should be 4 or 5 inches apart, so as not to crowd the plants. Plants should all be pulled as soon as 5 or 6 inches high, as long plants are not desirable; and to allow a new set to grow. We sometimes have

4000 to 6000 plants heeled in before a single plant is sold, and grow from 20,000 to 40,000 per season.

The sweet potato is a lover of heat; and if you want a nice lot of plants, their bed must be kept quite warm. Cloth shades are of no use; use only sash with glass, and cover the sash at night with old carpets, rugs, or matting, or even plank, to retain the heat, much of which would be lost through the glass.

□ To recapitulate: Tubers must be kept warm and dry, and not fall below 40° in temperature. Hot-beds must be made quite warm, and kept so, and beds kept stripped of plants over 4 or 5 inches above ground. Last season was very unfavorable for hot-beds, as the weather was cloudy most of the time, and surface heating was of little avail. We could have sold 100,000 plants had we had them, as many beds failed to germinate, on account of a lack of heat. We have been growing plants for market for ten years.

E. G. KINSELL.

Green Spring Furnace, Md.

USING CLOTH TO COVER THE BEDS, ETC.

Friend Root:—I have been engaged in the business to some extent for the past 20 years. The manure of which the bed is composed should be forked over a time or two besides the handling it gets in hauling from the stable and unloading where the bed is to be constructed. About the first of April (I write for my latitude) I find early enough to build the bed. I use a pit about 12 inches deep, in which I place about 15 inches of manure from the horse-stable. Here I would say, that, should it contain a great deal of straw, it will need more forking. The object of the extra forking is to get it thoroughly mixed. I scatter over the bed, treading down evenly and firmly. My beds are designed to take a frame made of three 16-foot boards for the sides, 12 inches wide, one board in front, two at the back, with sloping end-pieces 5½ or 6 feet long. The bed, or pit, should be one foot larger every way than the frame. The above size will hold about one barrel or 2½ bushels of potatoes as they should be bedded. I place ribs, or cross-supports, about 2½ or 3 feet apart, to support the canvas, which I make of heavy unbleached sheeting, a yard wide, two widths stitched together about 5 yards long, requiring 10 or 11 yards for one frame cover, costing 8 or 9 cents per yard. Now, to avoid the trouble you speak of I tack one of the long sides to a light straight piece of board, usually 3 or 4 inches wide, one thick, the other side and two ends being supplied with light rings about ½ inch in diameter, sewed in loops on the cover about 2 feet apart, which are to be hooked over nails tacked in the frame to hold the cover on the side on which the roller is attached (for such it is) is also secured in a similar manner. Whenever it is desired to give the bed an airing, unhook and roll back as far as desired, not unhooking any further back on the canvas than you wish to roll. Of course, if the day is warm enough the end rings can all be unhooked, and the cover quickly and neatly rolled to one side, secure from any ordinary wind. I next place from 4 to 5 inches of soil on it. From the 10th to the 20th of April is soon enough to bed the potatoes. My experience leads me to say more potatoes are ruined by being placed in a bed too hot than one too cold. It is best, of course, to avoid either extreme. It is to be understood, that good sound seed is advised. Level the soil nicely, free from lumps or clods; place the potatoes from

$\frac{3}{4}$ to 1 inch apart, parallel over the bed, not letting them touch anywhere, splitting those that are $1\frac{1}{2}$ inches or more in diameter, placing the split side down. Cover about three inches deep, with good mellow soil. After the plants appear, which will be in 12 or 14 days, give water as needed. If placed closer than above, it is a hard matter to remove the plants without destroying too many young ones. About 4 or 5 weeks from the time of bedding, the plants will be ready to draw. As to varieties, Yellow Jersey and Yellow Nansemond seem to give the best satisfaction here. I usually get from 6000 to 8000 plants from a bushel of seed from the above varieties. I formerly tried saturating my canvas with linseed oil, for the purpose of making it waterproof, more transparent, and durable. I soon discarded the practice, as I found it utterly useless, as, after that time in the spring, we are not apt to have very long-continued cold weather, and the bed should be protected by shutters or plank to keep out cold and heavy rains. In no case should it receive a heavy cold rain early in the season. The oil has a tendency to rot and cause the canvas to break, thus proving an injury instead of a benefit.

Any one who has had experience in making hot-beds will soon learn that, the fresher the litter the more violent the heat, and sooner it will need forking over to prevent fire fang, which will be in from two to three days, four at most, from the time of first hauling.

W. H. GRAVES.

Duncan, Ill., Feb. 18, 1889.

RAISING SWEET-POTATO PLANTS, ETC.

About twenty years ago I was a grower of the plants quite largely, sending plants one season into 23 different States. Greenhouses are too damp; as a general thing fire heat otherwise. At least I did not make a success of it, though I believe it has been done on quite a large scale. The simple hot-bed, that there has been so much written about, yet no one ever made two that were just exactly alike in all their workings—too hot or too cold, too wet or too dry, weather not just to our liking, something the matter, that nothing but the best judgment could get along with and bring out the best results—as I was going to say, the simple hot-bed is the best, just as you would make it for any purpose, with three or four inches of good compost on top; then take the potatoes, if not over one inch in diameter, without cutting; spread them over the bed about as far apart as the size of the potatoes, keeping away from the edges of the bed four to six inches; then cover one to two inches with the same rich compost, screened so as to be uniform in consistency, and of a material that will not pack. Now cover the bed with boards (I have seldom used either glass or cloth for sweet potatoes); watch close; the temperature wants to be just about the same as for tomatoes, cucumbers, etc. As soon as the plants appear, which should be in about ten or twelve days, add one to two inches more of compost, so that the entire depth will be three to four inches. Now you can commence to give a little water—very seldom any is needed on the bed until the plants appear. They must now have plenty of air; and as the time is supposed to be some time in May, they will need but little covering except nights.

The usual time for putting the potatoes in the beds is from the 10th of April to the 1st of May; and for setting the plants, from the 20th of May to

the 10th of June, in this climate. I have raised excellent plants in a very mild hot-bed on a sheltered hillside sloping south, putting in the potatoes the last days of April, without using any covering whatever over the bed, and had the plants ready for setting the first days of June.

Potatoes larger than an inch in diameter I cut lengthwise through the middle. They will bring more plants, and quicker, than whole potatoes; but there is more danger of their rotting in the bed than whole potatoes. The rotting of the potatoes is caused by cold-dampness, and lack of air when the bed is too warm.

To keep the potatoes over winter, harvest carefully before frost kills the vines; spread in some dry place a week or so, then pack quite tightly together in dry barrels—old flour or cracker barrels—up to two inches of the top, then put on clean dry sand that will shake in and cover the two inches left; store in a dry place, and keep the temperature at 60 to 65 all the time.

You know enough about the management of hot-beds and every thing else, for that matter, to know that no amount of instruction either written or verbal will bring success. Nothing but experience will bring the needed knowledge, and that to a few only.

D. CUMMINS.

Conneaut, O., Feb. 18, 1889.

Friend Cummins also incloses a copy of one of his old circulars. As it contains much additional information, we give it below:

CULTIVATION OF THE SWEET POTATO.

Light sandy or loamy soil is best, but heavy soil well drained, with plenty of coarse manure well worked in, will do very well. Plow and harrow well; and if your land is poor, plow light furrows about three and a half or four feet apart; scatter in them a quantity of partly rotted manure, throw two furrows together over the manure so as to have the ridge quite high, and not very broad on top. Unless rain has fallen within twenty-four hours, or the soil is quite wet, it will pay to water when setting out, which may be done as follows: Thrust the right hand into the ridge (a mason's or garden trowel would be better), draw it toward you, and with the left drop the roots at the back of the hand or trowel; draw the soil around the roots; pour in about half a pint of water, then fill up with soil so the plant will be an inch or so deeper than it stood in the bed, so the stems of the lower leaves will be covered, as then it will sprout again if cut by frost or worms. Set the plants from fourteen to sixteen inches apart; keep clean from weeds, and the soil mellow with cultivator and hoe. Raise the vines with rake or fork to prevent rooting at the joints; the more moist the weather, the more frequently it will need be done. Dig if possible before severe frosts; store in a warm dry place—a damp cellar will not answer. With good cultivation the crop will average three hundred bushels per acre. Plants will be ready by the 15th of May, and can be set from that time until the 1st of July. One year I set a small patch the 25th day of June, in very rich soil, the yield of which was at the rate of over six hundred bushels per acre. My plants are grown entirely without glass, and are very hardy; they will be carefully packed so as to go hundreds of miles in good condition.

THE FOLLOWING IS FROM THE FRIEND WHO TOLD US HOW TO RAISE \$10.80 WORTH OF GRAND RAPIDS LETTUCE ON 12 FEET SQUARE OF GROUND.

Raising sweet-potato plants for sale has been right in my line of business for the past 14 years. I have always raised them in hot-beds. My frames are 6 feet wide by 12 long; front of frame, 8 inches high; and back, 12 inches high, covered with four 3 x 6 sash. For heating material I use fresh horse

manure, with considerable straw and forest-leaves thoroughly mixed and thrown into a large heap to heat. When it gets steaming hot I fork it over into another heap to heat up again, by which time it is ready for the bed or pit, for I dig a pit 2½ feet deep and 6 inches larger every way than the frame. Into this pit I shake the material, being careful to get it in as evenly as possible, at the same time treading it down solid and building it up 6 inches above the level of the ground, banking up the outside with dirt to keep the heat from escaping sideways. I now set the frame on and put on the sash. Now the bed will heat up the third time, and we must wait a few days until it cools down; for if we put the potatoes on while it is too hot they will surely decay, and the whole thing will be a failure. I watch it very closely with a thermometer, by plunging it down deep into the bed; and when the heat recedes to 90° or a little below, the bed is ready. I now put on four inches of good rich garden soil, and firm it down with a board, and put the potatoes on as thick as they will conveniently lie and not touch; then if one rots it will not affect the rest. I cover with 2½ inches of the same soil that is under them, being careful to have it moist and in good condition. Bank up the outside of the frame a little higher than the dirt on the inside, and raise the frame up so as to give the required depth under the sash. Now on goes the sash, and nothing remains to be done but to give it air on sunny days. I never water until the plants come through the ground. The above plan is for high ground. If the ground is low and wet, the pit must either be drained or the bed must be built on top of the ground.

ORSON TERRELL.

North Ridgeville, O., Feb. 23, 1889.

RAISING SWEET POTATOES AND SWEET-POTATO PLANTS IN RUTHERFORD CO., TENN.

Editor Gleanings:—Thousand of bushels of sweet potatoes are annually raised in this, Rutherford County, and many persons make the production a specialty, and several farmers raise nothing else to sell, and depend solely on the potato as a money crop. In our latitude, Middle Tennessee, about the last of March or first of April they are bedded for "slips." A variety known as the Southern Queen, a white or rather light-pale yellow, is almost universally planted. A raised bed is to be preferred to one even with or below the surface of the ground; and if protected on the north by a plank or close stake fence, the better. In bedding 40 or 50 bushels, a rich loose alluvial soil is selected, and plowed or forked up to the depth of 10 inches; if deeper, the better, and beds 4 feet wide are formed with ditches or walks 12 or 14 inches wide between, made by spading or shoveling the earth upon the beds. These walks give room for stepping around in drawing the slips, without tramping the beds, and also keep the beds well drained and free from too much moisture and subsequent baking. This plan is practiced by large producers for field cultivation, and the potato is not bedded until all danger from frost has passed—or the beds protected—and enough is bedded to set the whole plantation at the first drawing, which is generally about the first of May.

If a great number of slips are desired from one or a few bushels, make a raised hot-bed. In the absence of cottonseed, which we have and use here, fresh stable (horse) manure, well tramped to the

depth of 4 to 6 inches, is as good, and upon which pour as much water as the manure will absorb; then cover the manure with rich, well-pulverized mold, to the depth of 2 inches, upon which place the tubers as close together as you wish, then cover with two or three inches of like rich mold, and let the bed have all the sunshine it can get, but let no water, and especially no cold rain, fall upon it; it must be protected with boards, plank, canvas, or glass, when first made, which can be removed on warm sunny days. When the sprouts begin to crack the ground, add 2 inches more of earth. This will give the sprouts a long shank, and upon which numerous lateral or fibrous roots appear, and which assist the plant in keeping alive when detached from the potato. When the plant begins to come through this second layer of earth, give the bed a good watering; if the weather is warm, use pond water or well water that has stood several hours in the sun, or, what is still better, the suds from the wash-tub. Sometimes weeds and grass start before the plants, which may be removed with a sharp weeding-hoe.

When the plants are from 4 to 6 inches high they can be removed from the bed, and set out; or, if too cold, "heel" out, as nurserymen term it, in large bunches, for a week or two, as they keep better and produce more roots than if set out singly in the garden or field. Before drawing the slips the bed should be watered, which makes the drawing easier, but do not use too much water, or enough to make it muddy. The slips are drawn with the right hand, and not too many at one pull, the left hand pressing the potato, keeping it in place. When but few are drawn at a time they break off easily near the potato. If many are pulled at once, the skin is broken and frequently a plug of the potato comes with the slip, which materially diminishes the next supply. I have raised very nice potatoes from slips set out as late as the 1st of July. The months of July, August, and September being seasonable, potatoes may be harvested about the 1st of October.

If your potatoes are sound, and the weather favorable, in 8 days after removing the slips the bed will again be full and ready for the second drawing. The bed will allow several drawings before the potato becomes exhausted and refuses to send out more sprouts or slips, if kept well watered in dry hot weather. The plants should not be set in the field until the cold rains are over. They become chilled, and are never afterward vigorous, and will not produce good-sized tubers. The preparation of the soil, planting out, cultivation, and subsequent digging and housing of the crop, is reserved for a future paper if desired.

W. P. HENDERSON.

Murfreesboro, Tenn., Feb. 19, 1889.

THE KIND OF SOIL TO PUT OVER THE MANURE IN THE HOT-BED.

On the hot-bed you use *very sandy* soil. I have been in the habit of going down to the river (our place has a long river-front of half a mile); along this, sand is constantly deposited in time of freshets; the whole bank is made up of it. I take this and put it on 4 to 6 inches deep, and lay the potatoes on the bed, almost touching each other, covering them over 2 or 3 inches. You are raising cuttings really—you don't want food for plants. What they want they can find in the sand, as there is enough soil to furnish all they need. In break,

ing off the plants, be careful to put one hand on the potato to keep it in place, and break off with the other, so as to allow the younger ones to grow.

JOHN L. JANENBY.

105 West Walnut Lane, Philadelphia, Feb. 2, 1889.

HOW TO RAISE SWEET-POTATO PLANTS IN MISSOURI.

I have been in the business for several years, and I bed as many as 100 bushels. I dig my pits about 14 inches deep, 7½ feet wide, and about 40 feet long, as that makes as much sheeting as I can handle easily. I board up the north side 3 feet high, and slope my canvas to the south; pack in the manure about 12 inches deep; when packed solid, use plenty of straw, if you want it to heat well.

Skidmore, Mo., Feb. 23, 1889. JAMES PARSHALL.

USING CLOTH FOR A COVERING, AND HAVING IT SLOPE BOTH WAYS.

If a large bed is wanted we sometimes make the frame level six inches above ground; put a light ridge-pole through the center, then draw the muslin over like a house-roof, tucking the ends down at the gables. In this way the length of the bed should be north and south, giving the sun an equal chance on both sides of the roof. Here in Central Illinois we make our beds about April 15th.

Philo, Ill., Feb. 21, 1889.

M. L. BREMEN.

USING WHEAT OR OAT STRAW TO CONFINE THE HEAT OF THE MANURE.

On the manure place not less than 3 inches of light soil, on which put your potatoes, and cover about one inch deep; then over the whole bed place wheat or oat straw about 6 or 8 inches deep, and cover with boards to keep out rain. Be sure to feel under the straw every morning early; and as soon as the heat gets to the top, open the bed every day and cover only with straw at night, and in about two weeks the sprouts will be seen coming through the ground, when two inches more dirt should be put on the bed, and the straw removed entirely. This plan gives me first-class plants in 5 weeks from the time of planting, and they can then be drawn every 8 or 9 days until July.

E. F. BUSICK.

Church Creek, Md., Feb. 19, 1889.

USING STRAW OR LEAVES WITH MANURE IN ORDER THAT THE HEAT MAY BE LASTING.

I put in the trench about two feet of fresh stable manure, and it should be about half straw or leaves, otherwise it may get too hot and burn the potatoes.

If you use glass you want to be careful when the sun shines very hot, or you will cook the whole batch. The glass should be taken off when it is very warm, and put on again at night.

I built a house 14x16, double walls, and filled in with sawdust. I have kept my sweet potatoes and honey in the same house, keeping the temperature at 60° above; and if I haven't had well-ripened honey, no one ever did.

JASPER SMOCK.

Terre Haute, Ind., Feb. 25, 1889.

USING HAY AND BOARDS AS SUBSTITUTES FOR GLASS.

Care should be taken that the manure be all heated alike throughout the whole bed when first put in. Just as good plants can be grown without using sash, by covering the bed to the depth of 12 or 15 inches with marsh hay, and using covers over this made of ½-inch boards. The bed must be watched

closely; and when the heat is likely to get too high, air must be given by taking off the board covers, and a part or all of the hay if need be. If the plants are likely to get too large at top before you wish to set them in the field, mow the tops off.

Exeter, Pa., Feb. 26, 1889.

P. SUTTON.

The following is from a friend who gave substantially the directions given by the rest. He adds in conclusion:

I have tried this plan for several years, and it has never failed. I sold nearly 30,000 plants last year, and then did not have enough. I also make my beds for sprouting early cabbage, celery, pepper, and tomatoes after the above plan, only I bank up on the outside and cover with glass.

Darlington, Ind.

THOS. N. STOKES.

FORCING SWEET-POTATO PLANTS BY MEANS OF HOT SOAPSUDS.

We force potato-plants sometimes as follows: On washdays, after the washwoman is done with the warm suds we give our potato-beds a good bath, and it makes the plants come right up.

Water Valley, Miss., Feb. 20, 1889. W. H. EMBRY.

A VISIT TO BEE-CELLARS IN NORTHERN OHIO.

ERNEST OFF ON A RAMBLE.

FOR a long time I have contemplated visiting H. R. Boardman and other bee-keepers in the vicinity of Norwalk, O. This opportunity did not come until the last week in February.

The principal object I had in making this visit was to study the comparative merits of outdoor and indoor wintering. As you are aware, for the past two years we have had uniform success in wintering in chaff, and as a matter of course incline toward the outdoor method. H. R. Boardman has been equally successful—perhaps more so than we—in his winter repositories.

On the morning of the 26th of February, I found myself in Norwalk. It is with this place that many of our old readers will associate the name of our old friend S. F. Newman, who for a good many years back has been quite an extensive bee-keeper. At one of the leading groceries I saw some very nice honey, stamped with the name of the man whom I wanted to see. The groceryman informed me that Newman's honey *always* sells, and that he would buy no other. It was not long before I was introduced to the gentleman himself, whereupon I was invited into his office above the store. He is an insurance agent, and, like a good many other bee-keepers, has other business in connection with bees. He employs a clerk to do copying and general writing in the office, and a competent man to take care of his bees while he himself gives his personal supervision to both departments of the business. He has some three out-apiaries. After talking awhile, Mr. Newman kindly invited me to visit his bee-cellar, and, of course, I accepted. On our way thither Mr. Newman said:

"I believe that Boardman has got the way of wintering bees. Although I have

had excellent results in wintering in chaff hives, I believe I shall in time winter all my colonies on his plan."

We arrived at Mr. Newman's house; and after a welcome by the family I was conducted to his bee-cellar—a back room partitioned off from the main cellar. In it he has 127 colonies, all of which seemed to be wintering nicely, with one or two exceptions.

"You see," said Mr. Newman, "I have got tight bottom-boards; but if I were to get another lot of hives I would have the bottoms loose; and I would pile the hives up in a repository just as Mr. Boardman does, without bottom-boards, leaving the latter on permanent stands."

Of course, there was the strong odor of ordinary wintering repositories.

"From what source do you get your ventilation?" said I.

"From no source at all."

"Don't you have an underground sub-earth ventilator?"

"No sub-earth ventilator. There is an opening," said he, pointing to a small window in one corner, "that I used to use; but you see it is now plugged up tight."

"And your cellar-door is tight, is it?"

In response he closed the door and left us in absolute darkness, showing just the way he left the bees. As we left the repository Mr. Newman said:

"It is a mystery to me how that man Boardman carries his hives into the cellar without the bottom-boards. It seems to me the bees would be dropping and flying out, to the discomfort of the carrier."

"Yes, I should think so too; but I am going down to East Townsend to-morrow, and I am going to find out just how he does it."

Mr. Newman is quite enthusiastic on the matter of out-apiaries.

"Why," said he, "last summer my bees in the home yard had done little if any thing. Things went on thus, even through the summer. At my Bronson out apiary I discovered that the bees were filling up on something. This proved to be nectar from the peavine clover, of which there were large quantities in fields near by. They not only filled up, but were actually storing surplus. During this time my bees at home were doing little if any thing."

"How much of this peavine-clover honey did you secure from this apiary?" I asked.

"Three thousand five hundred pounds, nearly all of which was gathered after the basswood season closed; and it is the same honey which you admired in the store when we first met. I have noticed before," he continued, "that a difference of only a few miles makes a considerable difference in the secretion of nectar at times."

The swarms in the Bronson apiary were hived upon empty frames, and so far Mr. Newman is pleased with the plan.

After a pleasant chat with the family, I left. The following morning found me *en route* for East Townsend, or, rather, Collins, as the Railroad Guide has it. It seems to me unfortunate that there should be one name for the postoffice and another for the

railroad, both designating the same place. As Collins is only a short distance east, I am soon at the station. Upon inquiry I find that I must go directly south—following that long walk southward I saw yonder. After going but a short distance I inquired of a bright-looking school-boy, with books under his arm, where I might find the residence of H. R. Boardman.

"Well, sir," said he, "you go straight ahead until you come to the postoffice. Then you turn to the right, and go down that street until you find a whole lot of bee-hives, and then you turn in."

"Thank you," said I, with assurance. "It is the man with a 'whole lot of hives' whom I wish to see;" and with such directions I should certainly have no difficulty in finding the place. A short walk brought me to the postoffice; and upon turning to the right I saw a man who looked very much like a bee-man I had seen a few times at conventions. He was "the man who never loses any bees." Although I had not given my friend any warning of my expected visit, I could hardly have called upon him at a more opportune time. He was on his way to the postoffice, and, being a little "under the weather," as he said, he was rather yearning to see somebody to talk with. On approaching his residence I found no bee-hives, but a "whole lot of hive bottoms."

"Then you do leave those out the year round?" said I, as we were entering the house. The morning was a little chilly, and the warm base-burner fire, which greeted me as I sat down in an easy-chair, was cheerful indeed.

Glancing about me while my host was disposing of my coat and hat, I discovered some beautiful specimens in taxidermy—some 200 specimens I should guess. There were stuffed birds and quadrupeds, as natural as life could be, from this and adjoining States. Among the number were some quite rare specimens, all of which was the work of friend Boardman during his spare hours in winter or other times when his bees did not demand his attention. He enjoys it as a hobby, and well he may. He is, without doubt, a close student of nature—not only with the little busy bee, as I shall presently try to show, but with all animate creation.

While we were talking I could not help noticing the affiliation between a cat and a dog, lying at our feet, the former sleeping quietly across the dog's paws, as affectionately as a—couple of lovers, although the dog, when he observed that our attention was directed toward them, did not seem to regard the intrusion of his feline friend with favor. A low growl announced that he was seemingly ashamed to be seen in such company. The cat gave no particular heed, but, on the contrary, rubbed against her companion as though she understood him. I did not fail to notice the intelligence of all the dumb animals around friend Boardman. Even the horses were bright, and seemed to know their master.

Continued April 15th,

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POST-PAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APR. 1, 1889.

And I will give them a heart to know me, that I am the Lord; and they shall be my people, and I will be their God; for they shall return unto me with their whole heart.—JER. 24: 7.

THE DOVETAILED HIVE.

THE new dovetailed hive seems to be taking well, for orders are beginning to pour in for it at a good rate. At the solicitation of some practical beekeepers we have made the Dovetailed T super with thick ends, thus throwing out the objectionable loose boards to take up the waste space in the end. The section-holder super is also made deep enough to leave a full bee-space above the sections. W. Z. Hutchinson, whose advice we have sought, says, in a private note, "With the changes you have made the hive is well nigh faultless." He prefers the new Heddon hive, but next to it he says stands the Dovetailed hive as we now make it. We are now making some new engravings to illustrate it as modified, and will give illustrations and further particulars in our next.

Many questions come in to this effect: "Will the Dovetailed hive take the Simplicity frame, and will it take the $\frac{1}{2}$ -depth wide frame?" It will take the Simplicity or Langstroth, to be sure; but the supers will not take the half-depth wide frames. We can make them deeper to take the half-depth wide frames if desired, but we shall have to charge some more.

MORE ABOUT SWEET-POTATO-PLANTS.

I HOPE the friends will not complain because we have made this so much a sweet-potato number. The principles that are taught by the many letters apply not only to raising and starting plants of any description, but they are valuable to anybody who is interested in or who has any thing to do with the garden or with agriculture; and I want to give you two more letters that are furnished by R. M. Reynolds, of East Springfield, O. The following was from Waldo F. Brown, in the *Ohio Farmer*, some years ago:

The great danger in sprouting is, that you get them too hot and scald the potatoes. I lost a large part of my potatoes for several years from this cause. . . . I found, finally, that, when my bed had just the right degree of heat, a thick covering of straw or corn-fodder would keep an even temperature, so that it would not be chilled by cold nights, nor scalded by the hot sun; and since I adopted this plan I have had little trouble in sprouting sweet potatoes. Leave the bed open in the middle of the day until it feels warm, and then cover closely, and it is probable that your bed will need no more attention until the plants begin to come through. . . . As the straw will prevent evaporation, the bed will not need watering until the sprouts appear, when it should be kept well watered until they are nearly large enough to set out. I think it hardens the plants at this stage to let them get pretty dry, but the bed should be thoroughly watered a few hours before the plants are drawn.

And here is another, from Alfred Rose, of Yates Co., N. Y.:

The potatoes should be covered with three inches of fine dry sand (sand is much preferable to loam, as it is warmer and cleaner); there will be a difference of a full week or ten days between beds covered with sand or loam, those covered with sand coming the earliest. After the sand, then cover with as fine dry straw or hay as can be procured, then the beds should be covered with boards in such a manner as to shed rain.

THORBURN'S BUSH LIMA BEANS, ETC.

On page 209 of our last issue, I told you I had written to Thorburn, asking him how many packets he had that he would let us have at 25 cts. each. His reply was, that he was sold out. I then wrote that we *must* have just a few, no matter what they cost, to which he has made no reply. If no reader of GLEANINGS can help us, I shall put an advertisement in *Popular Gardening* and in *American Garden*; and I feel sure that I can in some way strike one of Thorburn's customers. I am going to offer their weight in gold for a few of them, if I can not get them otherwise. All I can find out about them is given on page 209, March 1st. A bush lima bean has been hunted up away out in Minnesota (advertised by Northrup, Broslin, Goodwin & Co., Minneapolis), but they are of a deep creamy yellow color, and but little larger than Henderson's.

We have at this date, 8544 subscribers.

SPECIAL NOTICES.

THE IGNOTUM TOMATO.

If any subscriber has omitted to ask for his tomato seed, or if any one has failed to receive his package, make application at once and it will be mailed to you.

COLD-FRAME CABBAGE-PLANTS.

With the aid of our new cold greenhouse, we have secured a splendid lot of H. A. March's cold-frame Jersey Wakefield cabbage-plants. Price 10 cts. for 10; 80 cts. per 100; \$6.00 per 1000. If wanted by mail, add 5 cts. for 10, or 25 cts. for 100.

CLEOME INTEGRIFOLIA, OR ROCKY-MOUNTAIN BEE-PLANT—SEED WANTED.

Since Samuel Wilson's advertisement of this California honey-plant, notwithstanding our caution—see page 148, a demand for the seed has sprung up that has exhausted our supply. Now, then, if any of the bee-friends in California or elsewhere have some seed to spare, we should be glad to get it. Please mail us a sample, and tell us how much you have and what you want for it. My impression is, that the demand will be short-lived. By the way, we should be very glad indeed to get reports from those who have tried the plant.

SEED POTATOES.

Our seed potatoes have wintered nicely, and are not sprouted a particle at the present writing. Early Ohio, Early Pearl, Lee's Favorite, and Empire State, we offer at 75 cts. per bushel, or \$2.00 for a barrel of three bushels. Beauty of Hebron, and Burbank, we offer at 50 cts. per bushel, or \$1.25 for a barrel of three bushels. In ordering potatoes we will pack them in our new slatted potato-box for 10 cts. per bushel extra. The potato-box, you know, is worth 16 cts.; but we make the above deduction because it saves providing some other package. The box will be worth 16 cts. to almost anybody. Where you are so far away that express and freight charges are quite an item, we will send potato-eyes, postpaid by mail, at 10c for 10; 80c per 100, or \$6.00 per 1000, of any of the above varieties.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of queens, bees, and apianian supplies in general, from the following parties, who will be glad to furnish them to applicants. Those marked with a star (*) also deal in fine poultry.

A. E. Manum, Bristol, Vt.
J. M. Hyne, Stewartsville, Ind. (closing out his stock).
J. A. Nelson, Muncie, Wyandotte Co., Kansas.
C. Hooper & Co., Northampton, Northumberland Co., Pa.
W. P. Beach, Ovid, Clinton Co., Mich.
J. C. Sayles, Hartford, Washington Co., Wis.
Ransom & Culver, Quincy, Mich.
Wakeman & Crocker, Lockport, N. Y. (section-formers only).

No. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50 Knife,
No. 4, 1.25; No. 5, 1.00; No. 6, .65 \$1.15

On receipt of the above price

SMOKERS AND KNIVES

will be sent postpaid. Descriptive circulars will be sent on receipt of request card.

Bingham & Hetherington Smokers and Knives are staple tools, and have been used ten years without complaint, and are the only stovewood-burning clear-smoke bee-smokers; no going out, no vexation. Address

BINGHAM & HETHERINGTON, Abironia, Mich.
Please mention GLEANINGS. 671db

North-Shade Apiary.

Full colonies and nuclei at 50 cts. per comb, in good 8-frame L. hives (no charge for hives). Tested Italian queens, \$2.00 each. No queens for sale, except to go with bees. Will ship in light shipping-boxes instead of hives when so ordered. My brood-frames are Simplicity, L. size.

DISCOUNTS:—\$25 to \$30, 10 per cent; \$30 to \$50, 15 per cent; \$50 to \$75, 20 per cent; \$75 to \$100, or larger orders, 25 per cent off from above prices.

CONDITIONS:—All colonies will be well stocked with brood and bees, all healthy and bright. Delivered f. o. b. cars at Alamo, in the best possible shipping order. No foul brood ever known near here. Will fill all orders first week in May. Remit by Am. Exp., money order, registered letter, draft on New York or Chicago, or by P. O. money order on Kalamazoo.

Address

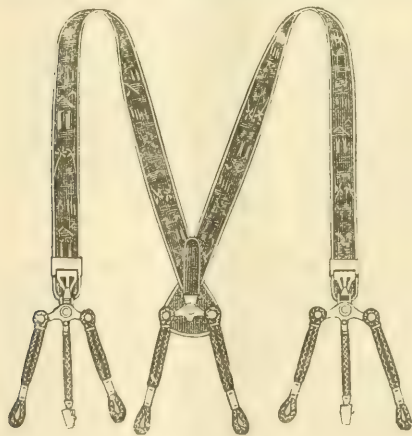
O. H. TOWNSEND,

Alamo, Kalamazoo Co., Mich.

7d

P. S.—40 to 200 acres of good land, located in Gratiot County, Mich., for sale cheap. The best location I know of for bee keeping. For further information, address as above.

SUSPENDERS FOR BEE-KEEPERS.



A number of customers have requested us to get a good suspender for bee-keepers, and a number of kinds have been suggested. The one shown above, called the "Foster," suits us as well as any we have seen. If you notice carefully you will see that, by the use of eveners, or equalizers, the strain on each button is the same. We can furnish them made of good white elastic web cotton ends, at 35 cts. per pair; silk ends, 50 cts. By mail, postpaid, 5 cts. per pair extra. In ordering please call them the "Foster." We can furnish very good white elastic suspenders, without the eveners, at 25 cts. per pair; by mail, 5c extra. Adjustable elastic armlets, 10c per pair, postpaid. A. I. ROOT, MEDINA, OHIO.

EGGS FOR HATCHING, from choice S. C. B. Leghorns; can fill all orders promptly, great and small. Circulars free. A few O. I. C. pigs for sale. 41-5d
FILLMORE DECKER, New Florence, Westm. Co., Pa.



With Love at the helm, a successful voyage may be expected. In the guidance of our beautiful little craft, "THE BEE-KEEPER'S REVIEW," Love sits supreme. In other words, we are most thoroughly in love with our work. With feelings akin to a mother's, do we look upon the numbers of

the REVIEW. They are our mental children. It is said, that, although all the children of a family receive affection in the same degree, there is always a favorite child. This may not always be true; but certain it is, that every author of more than one book looks with special pride upon some one of these books. Reader, if you would be pleased to see the number of the REVIEW that comes the nearest to an ideal, send for the March No. for 1889. It will be sent free, and with it will be sent the May and June issues for 1888. Price of the REVIEW, 50 cts. a year. Back numbers furnished.

The Production of Comb Honey is a neat little book of 45 pages; price 25 cts. This book and the REVIEW one year for 65 cts. For \$1.00 the REVIEW will be sent two years, and the book "thrown in." Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,
Flint, Mich.

613 Wood St.

7d

In responding to this advertisement mention GLEANINGS.

Non-Swarming Queens

For sale at \$1.00 each by April 15th. Safe arrival guaranteed. Each queen shall be a daughter of a queen that has refused to swarm for 3 years. I have two of her daughters that also refused to swarm last year. The chances are twenty to one that you will get a purely mated queen. Sample of bees sent, if desired. R. B. WILLIAMS,
Winchester, Tenn.



Eaton's Improved
SECTION CASE.
BEES AND QUEENS. Send for
free catalogue. Address
FRANK A. EATON,
5-16db Bluffton, Ohio.

In responding to this advertisement mention GLEANINGS.

A OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION.
See advertisement in another column.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

FOR SALE.—30 black and 40 hybrids, which I will sell after the 10th of April at the rate of 10 of each kind each week, till all are sold. Price, black, 30 cts.; hybrids, 50 cts. J. W. POOLE, Russellville, Ark.

I have 8 or 10 hybrid queens that I will take 40 cts. each for, or 4 for \$1.50. Ready to ship now, or I will take trade for queens. J. W. TAYLOR, Ozan, Ark.

I have two black queens, young and prolific, which I should be glad to sell at 35 cts. each.
B. C. GRIFFITH, Griffith, N. C.

Mismatched Italian queens for sale at 25 cts. each.
L. A. KESSLER, Nappanee, Elkhart Co., Ind.

Brown queens, 25 cts. Italian hybrids, 30 to 40 cts. Carniolan hybrids, 50 cts. each. F. C. MORROW,
Wallaceburg, Hempstead Co., Ark.

I have about 15 black and hybrid queens, ready April 15. I will ship in Peet cage, at 40 and 50 cts. each, safe arrival guaranteed. R. H. GUTHRIE,
Powhatan, Lawrence Co., Ark.

 In responding to this advertisement mention GLEANINGS.

STRAW BLACK GOOSE RASPB DEW

BERRIES

CURRENTS and CRAPES.

ADA Large, Late, Hardy, Prolific,
Black RASPBERRY, Latest of
all in Ripening.

FIRST-CLASS PLANTS * AT * LOW * RATES.

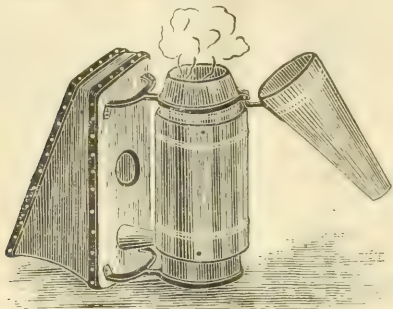
THEO. F. LONCECKER,

Correspondence Solicited. 3tfd **Dayton, Ohio.**

1 In responding to this advertisement mention GLEANINGS.

1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. CLARK's illustrated price list. He is rock bottom for all supplies, and don't you forget it.



W. E. Clark's Improved Hinge-Nozzle Quinby Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York
3-14db Mention Gleanings.

B. J. MILLER & CO.,

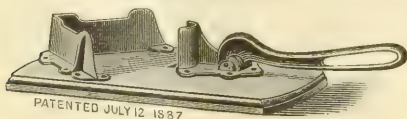
NAPPANEE, IND.,

BEE - HIVES AND ITALIAN QUEENS.

4 $\frac{1}{4}$ x4 $\frac{1}{4}$ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 1tfd

1 In responding to this advertisement mention GLEANINGS.

SECTION. PRESS.
PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to 5-16db

WAKEMAN & CROCKER, Lockport, N. Y.

1 In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3-14db

Box 11. Higginsville, Mo.

1 In responding to this advertisement mention GLEANINGS.

THE . BEST . HIVES
FOR THE LEAST MONEY.

BOTH SINGLE AND DOUBLE WALLED.

If you need any hives don't fail to send for my price list, as I make a specialty of hives, and think I have the best arranged hives on the market, at bottom prices. My hives take the Simplicity frame.

3tdb

J. A. ROE, Union City, Ind.

1 In responding to this advertisement mention GLEANINGS.

LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10 frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, \$7.00; 2 at one time, \$13.00; 4, same, \$24.00. Remember the risk of shipping lies with me. Address **JNO. A. THORNTON,**

Exp. office, Ursa, Ill.

Lima, Adams Co., Ill.

Mention Gleanings.

6-11db

I HAVE COME

To say E. Baer will close out the supplies he has on hand, consisting of 100 M. sections, 100 chaff hives, 2000 separators, 4 M. wide frames, far below cost. They are first-class goods, the same as I have sold in the past, and must be sold. Please state what goods you can use, and I will quote you bottom prices. Also a few choice tested Italian queens in June and July at 75c each.

EZRA BAER, Dixon, Lee Co., Ill.

6 tfdb

1 In responding to this advertisement mention GLEANINGS.

Do You Want Knowledge?

Send a postal for price list of International Encyclopedia, 15 vols., royal 8vo, over 13,000 pages, with maps and illustrations. It excels all in comprehensiveness, conciseness, lateness of information, convenience, and cheapness, C. O. D. Liberal discount for freight charges.

6-7-8d

A. H. VAN DOREN,
Mons, Bedford Co., Va.

1 In responding to this advertisement mention GLEANINGS.

BEES and QUEENS!

Ready to Ship.

Friends, if you are in need of queens or bees to replace in hives where they have been lost during the winter, I can accommodate you at the following low prices: Italian bees, $\frac{1}{2}$ lb., 65 cts.; 1 lb., \$1.00. Untested queens, \$1.00; tested, \$1.50. Hybrid bees, $\frac{1}{2}$ lb., 50 cts.; 1 lb., 90 cts. Hybrid queens, 75 cts. Prices by the quantity will be sent on application.

6-7-9-11d

W. S. CAUTHEN,

Heath Spring, Lancaster Co., S. C.

1 In responding to this advertisement mention GLEANINGS.

HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfd

2 STORY Langstroth B-Hives, \$1.00; 1-story Simplicity B-Hives, 45 cts. These hives have frames and covers, all ready for bees, except they are in flat. 6-7d **T. A. GUNN, Tullahoma, Tenn.**

MUTH'S

HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keeper." (Mention Gleanings.) 1tfd

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THOROUGHbred White P. Rock, W. Wyandotte eggs, \$1.50 per 13; L. Brahma, P. Rock, L. Wyandotte, W. and B. Leghorn eggs, \$1.00 per 13. **Italian Queens**, reared on the Doolittle plan, select tested, in May, \$3.00; June, \$2.50. War-ranted, May, \$1.25; June, \$1.00.

C. H. WATSON,

7-12db Newtown, Bucks Co., Pa.

In responding to this advertisement mention GLEANINGS.

FOR SALE.

Fifty colonies of Italian bees in 10-frame Langstroth hives, at \$5.00 per stand; 10 per cent off for more than one stand.

JOHN GRAND,

7-11db Batavia, Clermont Co., O.

In responding to this advertisement mention GLEANINGS.

BEE HAT AND VEILS.



Most people who handle bees wear some kind of a veil, or bee-hat, as some call 'em. Above we show the rig we prefer. The hat is one we have sold and recommended for two years, and have used for five or six. It is a light cloth hat, weighing only 1 oz.; fits any head, the inside rim having a rubber cord in it. The outside rim is held out in place by a spring wire.

We make veils of four different qualities.

No. 1 is our best veil, made of grenadine and silk brussels net, or tulle face.

No. 2 is the same without the tulle face, being all of grenadine.

No. 3 is made of mosquito bar, with tulle face.

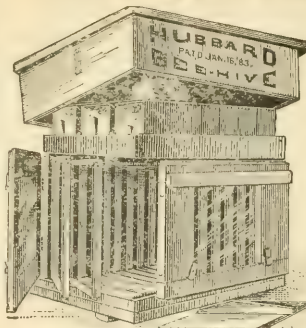
No. 4 is made of mosquito bar, without the tulle face.

Price—	each.	10.	100.
No. 1, Best veil.....	\$ 75	\$6 00	\$55 00
No. 2, Grenadine veil.....	60	4 75	45 00
No. 3, Tulle-face bar.....	40	3 20	30 00
No. 4, Mosquito bar.....	25	2 00	18 00
Bee-hat.....	20	1 60	15 00

Sent postpaid, or with other goods, on receipt of price. Our veils are larger and more roomy than those of other makes that we have seen. They have a rubber cord in the top, to draw them tight around the hat, as shown in cut. The lower edge is bound with a blue ribbon, and is drawn under the suspenders, as shown. The grenadine veils will wear much longer than mosquito-bar.

A. I. ROOT, Medina, Ohio.

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

G. K. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.
10 For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied. Mention GLEANINGS. 7-12db

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4½x4½ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb.; C. D. Battey, Peterboro, Madison Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

For Sale. Barnes foot-power circular saw; price, delivered to cars, \$27.00; with scroll-saw, \$32.00. It is all in perfect order, as good as new.

D. S. BASSETT,

7-8d

Farnumville, Worcester Co., Mass.

In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchange for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first.
31tdb A. F. BRIGHT, Mazeppa, Wabasha Co., Minn.

WANTED.—You to send for my new price list of imported and American Italian queens. Can ship as early as the earliest.
31fdb R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED.—To exchange, a first-class violin, cheap at \$50.00, for a foot-power lathe. It must be iron, and in good order.
71fdb D. S. BASSETT, Farnumville, Worcester Co., Mass.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
41fdb OTTO KLEINOW, No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange my new price list of pure Italian bees and Poland-China swine for your name and address written plainly on a postal card. N. A. KNAPP, Rochester, Lorain Co., O. 5678d

WANTED.—To exchange Plym. Rock cockerels from Sugar Grove thoroughbred-poultry farm, Pitkin & Kilpatrick strain, at \$1.50 each, for bees by the pound. Correspondence solicited.
7-8d W. H. SWIGART, Dixon, Ill.

WANTED.—To exchange Vanderwort foundation for any quantity of nice yellow beeswax.
7-8d B. CHASE, Earlville, Madison Co., N. Y.

WANTED.—To exchange new 4 H. P. horizontal engine for bees. Give me a call it must go, 7-8d J. B. OVEROCKER, Box 47, Melrose, Rens' Co., N. Y.

WANTED.—To exchange for books, wax, extracted honey, or offers, new improved winter bee-hives, or will sell at half cost.
C. H. FRASURE, Sherburne, N. Y.

WANTED.—To exchange all kinds of bee-keepers' supplies and Cuthbert raspberry-plants for bees.
81fdb C. W. COSTELLO, Waterboro, York Co., Me.

WANTED.—To exchange, barrel steamer for cooking feed, T pipe complete, and Wilson hand bone-mill, new, for extracted honey or any thing of standard market value.
8-9d H. L. GRAHAM, Letts, Iowa.

WANTED.—A good workhand by the year, who knows something about bees, competent to manage a large farm and stock.
8-9d G. J. GRAY, Dell, Malheur Co., Ore.

WANTED.—To exchange complete stencil outfit, consisting of 3 sets of dies, 6 lbs. brass; 700 plates, hammer and block, etc., ready for work; worth \$23, for stem-winding watch or best offer over \$7.00. Have quit business.
J. F. KALE, Newton Falls, O.

WANTED.—To exchange P. Rock eggs, fine, for Italian queens; Appleton's Cyclopaedia for honey; and a price list for your name.
St. Joseph Apiary, St. Joe, Mo.

WANTED.—To exchange Japanese buckwheat and P. Rock eggs and Barnes improved circular saw, for bees by the pound, or young queens.
8d H. O. McELHANY, Cedar Rapids, Iowa.

WANTED.—Untested Italian queens, for which I wish to exchange eggs from choice pure-bred P. Rocks, at the rate of nine eggs per queen.
7-8d A. F. LOOMIS, Hartwellville, Mich.

WANTED.—To exchange one ten-inch Root fdn. mill; has been used but one year, also 30 feet of 6-inch rubber belt, for bees or bee-papers' supplies.
71fdb THOMAS GEDYE, Kangley, LaSalle Co., Ill.

WANTED.—To exchange 400 broad-combs in L. frames, and 300 combs in half L. frames (half depth), valued at 10 cts. each.
7-8d MISS DELLY REYNOLDS, Sonora, Ky.

C. C. B. Leghorns, S. L. Wyandotte, and P. duck, S. 15 eggs, \$1.00, in exchange for bee-supplies, raspberry and strawberry plants, or beeswax.
7-8d GEO. A. WRIGHT, Glenwood, Pa.

WANTED.—To exchange Japanese buckwheat for Pekin ducks, or eggs, Wyandotte eggs, bee-supers for L. hive, and Italian queens. Address
7-8d A. J. SHEPARD, Walker, Linn Co., Iowa.

WANTED.—To exchange greenhouse and bedding plants, or seeds, for a few colonies of Italian bees. Send for large illustrated catalogue to select from.
8d L. TEMPLIN & SONS, Florists and Seedsmen, Calla, O.

WANTED.—To exchange a "Little Daisy" garden drill and cultivator combined, just new, for a good honey-extractor to take the L. frame.
8d A. F. MCADAMS, Columbus Grove, Putnam Co., O.

WANTED.—To exchange three-frame nuclei, at \$3.00 each. Tested queens, \$1.25 each; untested, 75 cts. each; Italian albino, for Shropshire or Hampshire sheep.
81fdb I. R. GOOD, Nappanee, Ind.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

FOR SALE.—A few black and hybrid queens, 35 and 50c.
YOUNG G. LEE, Charlotte Harbor, Fla. 8910

I have about ten black queens which I will sell at 35 cts. each.
A. J. HIGGINS, Washington Mills, Dub. Co., Iowa.

I have four Italian queens, with a dash of Cyprian blood in them, that I will send by return mail for 50 cts. each; were reared last year, and are good layers.
L. B. SMITH, Cross Timbers, Johnson Co., Tex.

I have 25 hybrid queens which I will sell for 25 cts. each. Stamps taken. H. H. T. KOHLENBERG.
New Braunfels, Comal Co., Tex.

I have a few hybrid queens to spare. Apply before May 1st.
J. T. WILSON, Little Hickman, Jessamine Co., Ky.

Four good hybrid queens for sale. They are one year old, and I warrant safe arrival. One queen, 50 cts. or 4 for \$1.75.
D. D. HAMMOND, Malone, Clinton Co., Ia.

CHEAP! To reduce my stock I will sell a few full stocks of pure Italians, in new L. portico hives, on six frames, for \$5.00.
8d C. G. FENN, Washington, Litchfield Co., Conn.

Rearing Queens in Colonies

having laying queens. Send your address on a postal card. Circular free.
8-10d H. ALLEY, Wenham, Mass.

In responding to this advertisement mention GLEANINGS

200 COLONIES BEES FOR SALE, IN ANY SHAPE TO SUIT PURCHASERS.

By the hive, by the pound, 2, 3, or more frames of brood, with or without queens. Black, hybrid, dollar, or pure Italians. Write for prices, stating what you want. I must sell, so they will be cheaper than the cheapest.
S 9d **G. W. GATES,**
Bartlett, Tenn.

EARLY + QUEENS

	Apr.	May.
1 untested queen	\$1.00	\$1.00
3 " "	3.00	2.50
1 virgin " "	\$6 per doz 60	60
1 tested " "	3.00	2.50
3 " "	7.50	6.00

2 and 3 fr. nuclei; special rates to dealers.
South Carolina is the best State in the South for early queens. The climate is well adapted to queen-rearing, and it takes but 4 or 5 days to send them through the mails to any part of the Northern States or Canada. Prompt shipment and safe arrival guaranteed.
W. J. ELLISON,
6-S-9 10d Stateburg, Sumter Co., S. C.

In responding to this advertisement mention GLEANINGS.

1000 Lbs. Bees with Queens and Brood.

See Supplies, Honey, &c. Price List Free.
Oliver Foster, Mt. Vernon, Linn Co., Iowa.
Mention Gleanings. 7-10db

CARNIOLAN QUEENS

From captured mothers. Untested queens, \$1.00; tested queens, \$2.00.
J. B. KLINE'S APIARY,
7-10db Topeka, Kansas.

HALF-PRICE!

SOMETHING FOR THE GOOD WIFE.

Any one sending us \$3.50 for 1000 FIRST-CLASS SECTIONS or \$1.00 worth of other supplies may have one of our SELF-HEATING CHARCOAL SMOOTHING-IRONS for \$1.50, which is half-price. For description, send for circular, or see adv't in GLEANINGS for Oct. 15, 1888.

SMITH & SMITH,

7tfdb Kenton, Hardin Co., Ohio.
In responding to this advertisement mention GLEANINGS.

Pure Italian Bees For Sale

Two-frame nuclei, \$3.50; 3-frame, \$4.00. Full colony in A. I. Root's Simplicity hive, \$7.00. Each nucleus and full colony to contain a fine tested queen, and plenty of bees and brood, all on wired L. frames, combs drawn from foundation. To be shipped in May. Safe arrival guaranteed. Hives new, and every thing first-class. I shall do by all as I would be done by.
N. A. KNAPP,
7-10db ROCHESTER, LORAIN CO., OHIO.

In responding to this advertisement mention GLEANINGS.

Minorcan Queens.

Very prolific, and tolerably docile. No foul brood known. Will be sent from April to October, by mail, on receipt of \$2 greenback in certified letter.

F. C. ANDREU.

7-8-9d Port Mahone, Minorca, Spain.

Italian Bees and Queens.

Tested queen, \$1.50; untested, \$1.25. Bees, per lb., \$1.00. Frame of brood, 50 cts.; 3-frame nucleus, containing 2½ lbs. of bees, 2 L. frames of brood and tested queen, \$4.50. Queens reared from imported mother. Mismatched queens, 50 cts. each. Send card for price list.
MISS A. M. TAYLOR,
7 8d Box 77, Mulberry Grove, Bond Co., Ill.

In responding to this advertisement mention GLEANINGS.

Italian Bees and Queens for Sale

Wishing to reduce my stock of bees, I offer 50 colonies of fine Italian bees at the following extremely low rates: Full strong colonies on L. frames, put up in light shipping-boxes, f. o. b. at my station, \$5.00 per colony. Tested queens, \$1.25 each. Satisfaction guaranteed.

8-11db **A. C. BRUSH,**
Susquehanna, Sus. Co., Pa.
In responding to this advertisement mention GLEANINGS.

Attention, Poultrymen!

Black Minorca, Langshan, R. C. B. Leghorn, Silver-spangled Hamburg, and Wyandotte eggs, \$1.00 per 13. Minorca fowls, \$3.00 per pair.

8tfdb **E. P. ALDRIDGE,**
Franklin Square, Col. Co., O.
In responding to this advertisement mention GLEANINGS.

COMB FOUNDATION.

Brood, 32c; thin, 42c; 20 lbs. or more, 30 and 40c.
8-9d **H. L. GRAHAM,** Letts, Iowa.

LACED and WHITE WYANDOTTES and PEKIN DUCK EGGS: 13 for \$1.50; 25, \$2.50. **J. H. WARM,** Richards, O.

If like begets like, then I know you will like my well-liked Brown Leghorns. Eggs, \$1.00 per 13; \$1.50 per 26. Price list free. **A. F. BRIGHT,**
7tfdb Mazeppa, Minn.

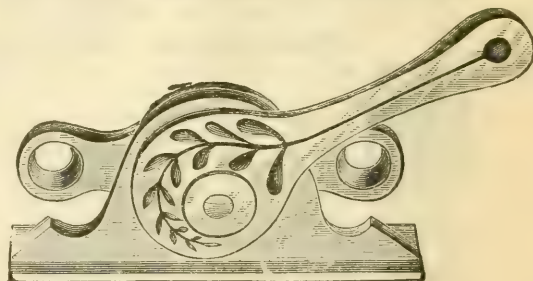
A OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION. See advertisement in another column.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, \$2.00; after June 1, \$1.50. Untested queens, \$1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

4-9db **C. W. JONES & CO.,**
Bryant Station, Maury Co., Tenn.

BUCKEYE SASH-LOCK IMPROVED.



Since we first got hold of this most excellent fastener we have sold over 60 gross of them. This large sale shows how well they are liked. The last lot we received from the manufacturer are somewhat improved. By comparing the above cut with the one in our advertisement on the first inside cover page of this number, you will see that the change is in the lever. The old pattern has a knob, while the new has not. In most windows, as now made, there is a strip on each side, between the upper and lower sash, separating the grooves in which each sash is worked up and down. The improved lock can be fastened to the upper sash to press against this strip, and allow the lower sash, when raised, to pass it; while with the old pattern the lower sash would strike the knob on the lever. The lock as improved is absolutely perfect for either upper or lower sash. Price of the japanned, same as in the adv't, 5c each; by mail, 8c; 50c per doz.; by mail, 75c; \$4.00 per 100. We have them also made of solid brass at 10c each; \$1.10 per doz.; \$9.00 per 100.

A. I. ROOT, Medina, Ohio.



Vol. XVII.

APRIL 15, 1889.

No. 8.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES—NO. V.

RENTING.

AFTER settling upon a location for an out-apiary, make sure to have a distinct understanding as to the rent you are to pay. If the landlord says, "Oh! never mind, we'll not quarrel about that," leaving the matter to be settled some time in the future, don't leave it at that. There is a chance for a very wide difference of opinion as to what is right, and that difference will probably never be any less than when you start. Indeed, unless you know your man well it may be well to have every thing in writing. Perhaps I ought to add, also, that your man should know *you* well; and if you haven't already established a reputation for being a thoroughly upright man, I advise you to commence putting in 24 hours of every day, seven days in the week, working at it. It is difficult to give any advice about what rent should be paid, as so much depends on circumstances. If land is worth \$4.00 per acre, annual rent, and the presence of the bees makes no trouble whatever, I see no reason why the bee-keeper should pay more than \$4.00 per acre for the land he holds from cultivation. A tenth of an acre is sufficient ground on which to place 100 colonies, so that, in the case supposed, 40 cents would be a fair annual rent. But the flying bees may prevent horses from working anywhere near the hives, and thus, practically, the bees may occupy an acre or more of ground. Besides, the farmer may dislike to have the bees around, and \$40 added to the 40 cents would not reconcile him to their presence. Reference to page 946, GLEANINGS for Dec. 15th, 1887, will show what a diversity there is in the views and practices of some of our leading bee-keepers. Some

say the same price as the land could be rented for, for other purposes. Some say it depends on circumstances, and wisely decline to set any figure. Prof. Cook thinks the rent should be only nominal, as the bees are a benefit to the farmer. Dr. Mason says he can get plenty of places at \$5.00; \$8.00, \$10.00, \$15.00 to \$25.00, are mentioned by others, while Mr. Wilkin, in California, thinks \$100 is a moderate rent for a good location where 300 or 400 colonies can be kept with exclusive control of the bee-pasturage within a radius of three miles. Mr. France pays 25 cents for each colony, spring count. Dadant & Son pay one-fifth of the honey crop. This, however, includes not only rent, but house-room for extracting, for spare supers, boxes, crates, etc., and the board of men and team while at work. Capt. Hetherington, who is probably the largest out-apiarist in the world, pays uniformly \$15 for each apiary, and P. H. Elwood does the same.

From all this we learn that "circumstances alter cases," and also that in actual practice bee-keepers are very liberal in the rent they actually pay. I think this is decidedly advisable. The matter of rent forms a comparatively small part of the expense at any rate; and the good will of the family where the bees are kept has a cash value of considerable amount. I think I should always want to pay a *little more* than the farmer thought actually right. Be careful to manage so there shall be no annoyance from the bees on account of carelessness on your part. In my own practice I have never been able to have my landlords agree to take any regular pay. In two places I have relatives, so that in one case only was there a cold-blooded business transaction, and in that case it was hardly so after the first year, for Mrs. Belden insisted it was a pleasure to see us come; and here I may as well

own, that taking the women-folks along may make some difference in my case, for they always insist on having every thing picked up and in good shape about the apiary, and I'm afraid I shouldn't always be so neat.

In many little ways it is in your power to do things that will be pleasant, and will be a pleasure for you to do. If you've been reading a daily paper as you drove to Mr. Jones's, leave it at the house, and say you've read it and don't care for it. Mrs. Jones is pretty sure to like flowers. Take her some seeds or some slips. Unless you're a better bee-keeper than I am, you will occasionally have some of what I call "crooked honey," which the bees have built where you didn't want it, or in shape that you don't want, and you may as well leave it with Mrs. Jones. Don't take it to her and say, "I always like to be independent, and pay my way, so I brought you some nice honey," but go and ask her if she will lend you a plate or a milk-pan; then take her the honey and say, "Here's some honey that was in such shape I didn't want to leave it in the hive, and I'll be obliged to you if you'll use it for me. It will be a dauby sticky mess before I get it home, and I'd like to get rid of it." I've said that more than once, and told the truth too, and I'm pretty sure the crooked honey was appreciated. It would be a mutual pleasure, too, for you to go to the house early in the harvest and say, "Mrs. Jones, here's the first section of honey ever finished by the bees on your place, and I want you to see what nice work they make. Try it, and see if it won't be a good medicine for Mr. Jones." I might add that, although I pay no rent, I always make a point at each apiary of leaving all the honey I think the family need for a year.

C. C. MILLER.

Marengo, Ill.

Friend M., your concluding paragraph sounds so exactly like you that it seems to me I hear the tones of your voice, and catch the kindly look from your face as I read it. You are surely right; and the plan you give will not only enable one to get along nicely in establishing out-apiaries, but it will help us in every kind of business in the world. Nay, further: When the world's business and the world's busy cares are done, it will help you to lie down in peace, and be ready for the "Well done, thou good and faithful servant," as he is ushered into that better land.

WORKING FOR EXTRACTED HONEY.

FRIEND DOOLITTLE GIVES US SOME WISE HINTS IN REGARD TO THE MATTER.

BEFORE me lies a letter requesting that I give in GLEANINGS an article on "how to manage for extracted honey," saying, "Such a letter would be of great benefit to all novices." Of course, I desire to oblige and be a "benefit to all novices," but I can hardly see how the writer of this request knows that such an article would be a benefit to "all novices," for it is my opinion that the majority of them would not care a cent for it. However, as the time is at hand to begin to prepare for our season's work, it might be well to see what should be done if we are to work for extracted honey the coming summer. Just at the present time there seems to be a "craze" among bee-keepers on the subject of comb-honey

production, some of our bee-papers going so far as to inquire seriously if the "extractor ought not to go," claiming that it has been a damage to us as apiarists. I fear this is not a wise policy, for it can only result in soon lowering the price of comb honey and advancing the price of extracted, thus causing an expensive changing of fixtures a second time. It seems to me that the well-balanced apiarist should produce both comb and extracted honey; and as he sees the tide swaying toward the side of the one, he should go a little heavier in the opposite direction, but not enough so as to throw aside all his fixtures along the line the tide is moving. As I have worked for years for both comb and extracted honey, and believing that the present time is favorable to the production of more extracted honey and less comb, I will, in brief, tell the readers of GLEANINGS how I proceed to arrive at what seems to me the best results.

The first thing necessary in the production of extracted honey is a good queen to produce hosts of workers in time for the harvest. But good queens are of value only when we surround them with favorable circumstances, thus getting large numbers of eggs laid at the right time, and causing each egg to be nourished to a perfect bee, so that we can have the bees in our colonies by the tens of thousands at the right time. Failing to do this, the flowers will bloom in vain as far as filling our surplus combs with honey ready for the extractor is concerned. But, what are favorable circumstances? is asked, to which I reply, an abundance of food and warmth. The abundance of food is quite easily secured in this day of bee-feeders, and especially so if the apiarist has set aside, the previous season, as he should, combs solid with honey, which are ready to be set in the hive at any time. To secure the requisite warmth in early spring, I know of nothing better than chaff hives, such as I spoke of a month ago, which, together with chaff dummies for the weaker colonies, will give us the best thing possible along this line. If we do not have the chaff hives, dry-goods boxes or any thing made of rough boards to set the single-walled hives in and hold the chaff is better than no protection at all. Fixed in this way, colonies will go right on breeding during cold days and frosty nights where they would not think of doing so were no such protection used. The weaker colonies are to be confined to the combs they can occupy till they are filled with brood, when a frame of hatching brood is to be inserted in such a colony, taken from one of the strongest. Don't do this till they have the combs well filled with brood, for I find that a weak colony can be brought up to a condition ready to gather honey, much sooner by leaving it till in the condition as above, than it can by continual fusing with it in early spring. In this way, now work till all hives are filled with brood, which will be, if you have succeeded as you should, a little in advance of the honey harvest, or at about the time the main honey harvest is commencing.

If we wish no increase from our bees, no time is now to be lost in putting on the surplus arrangement, otherwise the bees become crowded and may get the swarming fever. For the extracting super I prefer another hive of the size of the first, but some prefer one of only one-half the depth. As to results, there is probably no great difference, but I consider it quite an object to have all hives and frames alike in the apiary. In putting on this sur-

plus arrangement I prefer to use empty combs, if possible, instead of comb-foundation. I also prefer to use two large or wide dummies, one at each side, for a few days, so that half of the room is taken up, which leads the bees along gradually instead of thrusting a large amount of surplus room upon them at once. As soon as the half of the hive given them is partly filled with honey, the dummies are taken out, the combs spread apart, and frames filled with foundation put between them. At this stage I would just as soon have foundation as empty comb, for the bees are now ready to work upon it, while before they were not. The time for taking out the dummies is when you see the cells being lengthened out with new comb built along the top-bars of the frames. How you will proceed in the future, depends upon whether you wish your honey ripened in the hive till the harvest is over, or ripened in a warm room by evaporation. Sometimes I think that honey left on the hive through the season is of better quality than that extracted every week or so; then, again, I am not so sure about it. Of one thing I am certain: More honey can be secured with less hives and fixtures where it is extracted when the bees first begin to seal it, than can be gotten by the other method. As to labor there is little difference, except that, when we extract often, the labor comes at a time of year when we are most crowded. To be sure, the operation is gone through with oftener; but to offset this there is little or no uncapping to be done, while the honey leaves the combs more clean with less than one-half the labor in turning the extractor. In my opinion the season has more to do with the quality of the honey than the process of ripening. If the season is hot and dry I would just as soon have honey extracted as above, as that left on the hive the season through. If damp and cool, I prefer it ripened by the bees, and even then it is not nearly as good as that gathered in a hot dry season. If you decide to leave all on to the end of the harvest, another story should be added just before the first is filled; but if not, the one extra story will probably be all you need.

In conclusion, I will say that the getting of multitudes of bees, just at the right time, has more to do with the successful working for honey than any thing else; and when all realize this, and work for the same to the fullest extent, one-half of the colonies now employed will gather as much surplus as the whole do under our present management.

Borodino, N. Y., Apr. 1, 1889. G. M. DOOLITTLE.

I believe I have nothing to add, friend D., except that I heartily concur in almost every point you make, and especially your concluding sentence.

RAMBLE NO. 14.

ON A (READING) SPREE. THE RAMBLER DISCOURSES ON THE EVILS OF INTEMPERANCE.

I HAVE had bee-keepers come into my apiary who were evidently on a spree from strong drinks; and it is a deplorable thing to see a man of intelligence and reason submit himself to this demon. But intoxicating liquors do not bring all the misery, and there are other sprees that seem to be nearly as bad. And, not to judge others harshly, the Rambler would commence with himself, and say that he is many times subject to sprees. Let him get hold of a good story, and day

and night it is pored over until finished; and what is that but a reading-sprees? The Rambler has no doubt that others who read this will acknowledge the same failing; and having in my rambles found an extreme case of this sort of spree, I wish to hold it up as a warning to those who may unconsciously cultivate the habit, to their detriment, instead of edification, and also to show that a reading-sprees will bring on nearly as bad results as the slavish use of the intoxicating cup.



A MAN WHO NEGLECTS HIS FAMILY.

The man whom the Rambler found, not only desired to read a book, but also to own it, so in the course of a few years his hard earnings went into a fine library of over 400 volumes, embracing works of fiction, history, science, and medicine. On any department of history he wished to post up; the most expensive books were purchased; he essayed to be a bee-keeper, purchased books and periodicals, and a general study of the business was entered into. The theory of bee-keeping was at his fingers' ends; but putting his knowledge into practice, a failure was the result. Division and re-division was made for rapid increase, with the usual result—ruination to the swarms. And another trial led to a failure in some other point.

The poultry business was taken up in the same way, with the same results. Meanwhile he took to himself a wife, and five children were born to them. These children are as bright and active as children will average, and, though living within five rods of the district school, the oldest have never been to school. Their education is neglected, to the carrying-out of some fine-spun theory about education. This man occupies a farm of 60 acres of good land which has been left by will to his children; he can not spend it, but can work it and support his family. Instead of working it, it has been much injured by successive renting; and at the present writing the wife is sick and is not expected to live. The children are in rags, except when clothed by kind neighbors, and all are thrown on the town for support. The father is strong and hearty—aged about 35, in the vigor of manhood. Is it any wonder that he is threatened by White Caps? While passing the house the Rambler and his traveling companion remarked that there was a house that looked as though an inebriate lived within—general dilapidation all around. The Rambler has found that, to be thrifty, a man must not be a slave to whisky or even to books. A book carefully and slowly read, and, better, re-read and marked, will give much

lasting benefit. There is a great amount of time thrown away upon even our daily and weekly papers. The Rambler reads many a paragraph before dinner that he can not remember after dinner, and he does not eat very hearty either. That we may all be free from frequent reading-sprees is the desire of the

RAMBLER.

Friend R., I have just been meditating on the very point you make, and I am really afraid that a good many of our young people are reading too much and practicing too little. The result of this kind of intemperance—for intemperance it surely is—is an ability to talk well on these subjects, and oftentimes to write very fair essays for the agricultural papers; but when somebody happens to pay a visit to the writer of these articles, and finds that his home does not correspond a bit with his preaching, it tends to demoralize and disgust the whole fabric of human society. Every one should read the books and papers, and know what is going on; but to continue to read and read, without actual practice, is just what you put it. In our own home we have a young lady who reads books until almost eleven o'clock at night, unless her parents interfere and make a fuss about it. As a result she is not ready for breakfast next morning. When I was her age I read pretty much every thing I could get hold of, but there was not enough to be had to give me a chance to be intemperate, as you put it. In this age of abundant periodicals, private and public libraries, etc., it does behoove us to look well to our children, and see that they do not acquire intemperate habits in the use of books.

CELLARS AND WINTERING.

PROF. COOK GIVES US A FAVORABLE REPORT OF HIS CELLAR DURING THE PAST WINTER.

MR. EDITOR:—Our old cellar was in sand, entirely below ground, and provided with good sub-earth ventilation. A good stream of water flowed into and out of that cellar constantly. I never knew the thermometer to go lower than 38° F., and I rarely knew it to go lower than 40. The bees wintered well. Our present cellar is in regular Medina clay, and this winter the thermometer has gone down to 35° F., repeatedly, and once down to 30° F., so that water froze in the cellar. I used an oil-stove repeatedly, and so kept the temperature for the most part up to about 40° F. My first point is, that a cellar in sand is better for bees than one in clay. I should think that the running water might have made the difference, except one very dry winter when the stream dried up. That winter was much colder than this winter has been, and yet 38° F. was the lowest in the old cellar. Again, the old cellar, or the house above it, was protected by a barn and evergreens. The present bee-house is on a bleak exposed hill. This situation may aid the clay. Were I to build a bee-house again, and could have my choice, I should select a sandy site. When the thermometer got down to 30° F., the bees were quite uneasy. I don't like such a low temperature in the cellar, so I was uneasy. Accordingly, last Tuesday, being a warm day, we concluded to give the bees a fly. We find them usually strong and in good condition. As in

the two past winters, the Heddon hive is far ahead. My assistant said every colony in the Heddon hives is as strong as they were in the fall. Most of the hives are covered only with a board, and have the entrances open. When set out, the covers were dripping with water. We fed most of them sugar syrup last autumn. I have never yet given just my opinion of the new Heddon hive since using it. I shall, with your kind permission, do it soon. It will not be all praise, but I am fully persuaded that the double brood-chamber, divided horizontally, is an advantage in cellar wintering.

I believe that Mr. Doolittle, if I remember correctly, found, a few winters ago, that the use of his oil-stove, to keep the cellar at the right temperature, was an expensive experiment. So I was somewhat nervous this winter. I am glad to report that our bees are bright, lively, with no smell of disease about their persons, and yet they were warmed by an oil-stove.

A. J. COOK.

Agricultural College, Mich., Apr. 1, 1889.

I have for some time been much of the opinion you express in the above, friend C., that a sandy soil is much better for a bee-cellar than cellars made in the damp cold clay. I should be glad to have a report from you, favoring a double-brood chamber divided horizontally. At this date, Apr. 11, Ernest has not yet taken his Heddon hive out of the cellar. He says he wants to wait until a week or two after just the right time, as Dr. Miller said at Columbus.

A QUESTION OF BREAD AND BUTTER.

SHALL WE COMBINE OTHER OCCUPATIONS WITH BEE-KEEPING, WHEN IT NECESSITATES A NEGLECT OF THE LATTER?

ABOUT a year ago there was some discussion as to whether it was better to market our eggs all in one basket, figuratively speaking. To give a little of my experience in the last year is the task I undertake.

My crop of 1887 was very small—the gross proceeds only a little over \$125, or about \$100 net. You see, without some other resource I should hardly have made a living that season. As it happened, I did not have to neglect my bees much during that year. But this last season, the case was different. My bees came out of winter well, but shorter of stores than ever before. The spring was so cold and cloudy that they hardly got three days' work on fruit-blossoms. I managed to bring them into summer in pretty good condition, however. Then day after day passed, first into weeks, then into months, as I looked anxiously. Was the failure an unmixed evil? I had other crops in, which I had employed a hand to cultivate. But he failed me early in the season. Then, owing to the scarcity of laborers, and ill health on my own part, those crops were all and more than I could attend to properly. The season was favorable to the growth of potatoes, corn, and—weeds. If I could keep down the weeds I knew that corn and potatoes would yield me something, while the bees did not promise any thing, as it appeared that clover would not blossom at all. Should I peg away at a certainty, save my other crops, and let the doubtful bees go? I did that very thing, so far as I was able. I knew most of them would get along, although poorly. Some were in a starving

condition; all were listless and inactive. The busy roar of a honey season was never heard last summer. Twice I looked, to find a colony starving, and fed them up. Two weak ones died. I raised one batch of cells, but several queens never hatched.

But I will not detail all the losses from pure neglect. The middle of August found the prospect as bad as ever. About that time I undertook a job at which I knew I could make wages. It assumed larger proportions than I thought it would, and in the midst of it the biggest flow from heart's-ease I have ever known, with perhaps one exception, set in. I seldom get any surplus from fall flowers, when the hives are already nearly full. I have been so often disappointed that I had ceased to look for any thing from those sources. Now, when a boom had come, my bees were not in a condition to take advantage of it. Very few of them would go into surplus arrangements, and many were too weak to carry much into the hive at all. By dint of hard work I think I saved about all the bees could gather. I realized only about 400 lbs., comb and extracted. All the latter was taken from the brood-chamber; and when I came to prepare the bees for winter, quite a number of colonies were so weak that I had to unite them, and some others were weaker than I generally put into winter quarters. I have not half the extra combs in the honey-house that I shall need to feed them next spring, if the season is the most favorable. My stock has run down—in spite of a few swarms—lower than it has been for five years—nine colonies lower than a year ago.

Now, have I made or lost? Have I done right or wrong? Is it best to get my eggs in more than one basket, and thus have too many irons in the fire? I believe I have done the best thing under the circumstances. I have lost in bee-stock, and made a living. The loss will be felt in the future, that I may have my victuals and clothes in the present. If I could live without eating, and go barefoot, I should be that much better off. But bread and boots are necessities, and I must have them, even at the expense of capital for future use. For me, then, situated as I am, it is better to have more than the one resource (bees), even though that resource sometimes suffers by it. But if my situation were better—if I had a little surplus to help me live for a season, it would be better for me to stick to my bees through thick and thin. I should certainly be better satisfied, for I like bee-keeping better than any other occupation I have ever tried.

ARE QUEENS INJURED IN SHIPPING? A TESTIMONY.

On page 22 Mr. Swinson revives that subject. When I read Mr. Doolittle's article, page 749, 1888, I thought, "That accounts for it." I bought an imported queen of A. I. Root, in the summer of 1886. She was still living and laying this fall; but never, since I have had her, has she approached the average as a layer. In that respect she has been a perpetual disappointment to me. I knew not what to make of it until I read the article referred to.

GEO. F. ROBBINS.

Mechanicsburg, Ill., Jan. 10, 1889.

Friend R., I do not believe that you would be any happier than you are now, if you could live without eating, and go barefoot, as you express it. I think it is well to have more than one resource for a livelihood; but at the same time it behooves us to watch keenly, so as to be sure to make the best of both or all of our resources.—I

do not quite like your reasoning in regard to that imported queen. You have good proof, it is true, that imported queens are, some of them, poor layers, like all other queens; but certainly the single instance you mention does not go very far toward proving that *all* queens that have crossed the ocean are necessarily less prolific than others. I believe that reports have been given on these very pages, of queens that crossed the ocean, and afterward took long trips by mail, and yet furnished quantities of brood that would compare with any home-reared queen. Nearly half of the colonies in our apiary are provided with imported mothers; and, as a rule, we have been in the habit of expecting a little *more* of them in the way of egg-laying, rather than less. Their journey across the ocean certainly does not permanently cripple them.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

SOMETHING IN REGARD TO BUSH LIMA BEANS IN GENERAL, FROM PETER HENDERSON.

MR. ROOT:—I notice your continued efforts to get at the facts about the new Bush lima, that have been questioned by two or three of our disappointed contemporaries who feel annoyed about not being fortunate enough to get hold of such a good thing. That is human nature, and I must admit that I would have felt any thing but pleasant had we been left behind in such an important race, particularly if we had had the thing first in hand and failed to see its merits, as one of your correspondents admitted to me he had. Still, had such been our misfortune I hardly think we should have been weak enough to show our chagrin by decrying it when it was being sent out by a rival firm.

I notice what you say about having our Bush lima cooked and tasted by your family, and that you thought it had not got the lima flavor as much as the pole limas. I am afraid you are in error about that. We made a complete and exhaustive test of it the other day. We had them mashed up so that the size of the beans could not be seen, so as to influence judgment. We numbered the samples, sent half a dozen of our clerks as tasters, and the universal judgment was that there was no perceptible difference, because dried limas of *any* kind give but little of the rich *lima* flavor.

Now, I will give some of our contemporaries, who are claiming to have the large lima in bush form, a chance. I will pay one thousand dollars for a single bushel, or seven cents each for 15,000 beans, on proof that the seed will produce the *large* lima in bush form, as is done by our new bush lima. That it will yet be done is probable, for there is no reason that the large lima should not "sport" to the bush form as the small lima has done.

One of our near neighbors, William Elliott, one of New York's well-known seedsmen, was sent about a bushel and a half of large limas last fall, with a dried specimen of the plant, which certainly showed it in that condition to be a bush lima. I offered him nearly \$1000 for his bargain (?), but he laughed me to scorn, for he thought there were many thousands in it. But, alas! "the best-laid schemes of mice and men gae aft a'gae." Mr. Elliott's "dwarf"

beans, all of them on trial, got to the top of the highest poles. Somebody had "pinched back" the pole lima to throw it into bush form, and sold, or *tried* to sell, Mr. Elliott the product, because I believe he was sharp enough not to pay for the seed until it had been tested.

PETER HENDERSON.

New York, April, 1889.

Many thanks, friend Henderson, for kindly posting us in regard to this matter. I am very glad indeed to see your offer for a Bush lima that will furnish beans as large as our pole lima beans. It seems to me that this whole matter begins to look as if it might usher in a new era. What I mean is this: We have for years been breeding cattle, horses, poultry, etc., to supply the demands of the market; and almost as soon as it begins to be evident that there is a demand for a different animal from what we have already on hand, straightway somebody brings it out.

Now, friend Henderson has, in the above, told us just what he wants in the way of a lima bean, and I am exceedingly glad to hear him say he is ready to pay one thousand dollars for it. I am much better pleased to have such an offer as this than I should be if somebody would offer a thousand dollars for the best newspaper story, because I think there is much greater need of having boys and girls out in the open air, developing nature's treasures—yes, raising beans if you choose—than there is to have them crowd our newspapers and periodicals with rejected manuscript. The concluding sentence from Peter Henderson reminds us that swindlers are already in the business, and that we should look out before we pay out our money. And this brings us to a consideration of the Kumerle lima bean, offered by Thorburn. I do not believe that this is a humbug, because Thorburn's name itself is a sufficient guarantee, only I wish he would tell us more about it. Has Thorburn himself ever grown the bean itself, or seen it growing?

Here is something in regard to Kumerle's Dwarf lima bean, from another seedsman:

Mr. Root:—I am acquainted, in a business way, with the originator of Kumerle's Dwarf lima bean, who supplied Thorburn & Co. He says, "It is a sport from Dreer's improved lima bean, possessing all the fine qualities of the parent; grows two feet high, branches out in all directions, and should be planted in good soil, in rows three feet apart. It does not require any poles. It has been grown for three years, and has shown no tendency to run." He sold it this season only in packets containing 13 beans, at 25 cents. I have one packet. I have written him, and asked him to set a price on 100, 500, or 1000 beans; and if they can be got I will get his permission to send you some for trial.

ISAAC F. TILLINGHAST.

La Plume, Pa., April 4, 1889.

As we go to press we have nothing more from friend Tillinghast, but hope to have something favorable soon.

Here is a report from the Henderson Bush lima, right near where it originated:

HENDERSON'S BUSH LIMA BEAN.

For two seasons past I have cultivated the Bush lima bean. Having a wet season last year we found

it necessary to place brush close to the plants on each side of the rows, to keep the pods from touching the wet earth, which speedily rotted them. The beans are as large as the old Carolina or Sewee lima. I obtained them of a party in Prince Edward Co., Va., where it seems they have been known for several years. During the last six years I have grown an onion that corresponds exactly to the description given in the catalogue, of the so-called New Egyptian. To my certain knowledge it has been raised in Virginia for the last 20 years. A. S. MARTIN.

Roanoke, Va., March 13, 1889.

Thank you, friend M. We should be exceedingly obliged for any facts you can give on the subject of the new lima beans. It is quite likely that the onion you mention is the New Egyptian. I have heard of it from several localities, although it seems that Gregory was the first to catalogue it and bring it generally before the public.

THE CATALPA; IS IT A DESIRABLE TREE FOR ORNAMENTAL PURPOSES?

Some nurserymen are advertising the *catalpa* as a very hardy and desirable tree for ornamental planting. They state that plants the size of straws, planted late in May, grow to be seven feet high, and four or five inches in circumference, at the base. Please tell us if it is grown in your locality; and if so, with what success. ROBT. H. SHIPMAN.

Cannington, Ont., Can., Feb. 18, 1889.

Friend S., in California the *catalpa* does all you mention; and I am inclined to think that it does even more; and, best of all, when it is once started it will live right through the long drouths, without any irrigation at all. It grows in our locality, and makes a very rapid growth—I think not much more rapid, however, than the soft maples that adorn the streets of Medina, and we think the maple the handsomer tree. The *catalpa* yields considerable honey some seasons, but it comes exactly at the time of the basswood flow, so that our bees seldom pay much attention to it.

KEEPING CELERY-PLANTS FROM RUNNING TO SEED IN THE SEED-BED.

If you don't want your celery-plants to go to seed, don't let them ask twice for a drink, at any stage of growth. M. GARRAHAN.

Kingston, Pa., Feb. 24, 1889.

I am well aware, friend G., that the weather has a great deal to do with successful celery culture; but I hardly think that lack of water explains all the difficulty. Almost every year when our celery-plants stand in rows in the field, while cultivating we find occasionally a stalk running up to seed. These are pulled out as fast as noticed. After a certain stage we see no more of it. It may be our Golden Dwarf celery that started to run to seed in the seed-bed did so on account of lack of moisture, at a critical time. I am inclined to think that this is the case, for at one time it seemed as if they were all going to seed. After I pulled out these and threw them away there was no more of it during the season. Perhaps the abundant rains accounted for the latter fact.

MEL SAPIT NIA.

JOTTINGS FROM AMATEUR EXPERT, OF ENGLAND.

WE have been holding the annual meeting of the B. B. K. A. at Jermyn Street, London, during the past few days, so I thought I would send you a few particulars. Hitherto no one has been eligible for election on the managing committee unless he subscribed 10 shillings per annum. Each member was entitled to one vote for every 5 shillings subscribed, and a life member by paying £5 down was entitled to 4 votes per annum as long as he (or she) lived. This may seem strange rules to you, and I will not go into the why and wherefore, but pass on with the remark that these rules are common to similar societies in England. For three years we have tried to alter this, and, inch by inch, we are fighting the ground. This year we have carried the point that all and any members are eligible for election on the committee, whether they subscribe 5 shillings or more. The one-man one vote we could not carry, the rich subscribers having outvoted us. But we shall sharpen our swords for another year, and renew the conflict. I may say all this is done without party feeling; we manage to fight these battles and not lose our tempers.

Manufacturers of and dealers in bee-appliances are not eligible to act on the committee. How would that suit you? Hitherto we have kept them off by not voting for them, but now they must not be nominated. I protested strongly against such a rule being made, but it was, as the majority was strong for it.

County associations affiliated to the B. B. K. A. have hitherto sent a representative each to the quarterly meetings of the B. B. K. A., but these representatives have had no vote, and could only make suggestions, which the committee of the B. B. K. A. could please themselves about carrying out. We have now made these county representatives *ex-officio* members of the committee of the B. B. K. A., with full voting powers. I have enumerated these points as you have recently been altering the constitution of your N. A. B. K. A., and I thought they might interest some at least of your readers. There were several other matters considered at the business meeting, after which we had a "conversation," and Mr. Cowan, who came over from Switzerland to attend, read a paper on

THE BEST HIVE.

Of course, he was in favor of the hive he has so long used, which bears his name, and is known as the "Cowan" hive. It certainly is the best for our climate and circumstances; but as I may say something about hives on a future occasion, I will pass on, to say the discussion that followed was most interesting. It is seldom that we get a subject so rudimentary for discussion as this; and for myself I am pleased that Mr. Cowan brought it on. Our usual bill of fare is some abstract theory or scientific problem that has some remote bearing on bee-keeping, while practical bee-keeping is left out in the cold to shiver, on such occasions.

WINTER AT LAST.

During the past month we have had a few cold spells, with snow and sharp frosts. In the day time on clear days the sun has shown out very warm, and drawn out the bees for a fly. Stores are getting very low in some of our hives, and breeding

has been carried on all winter, I believe, in many of them. Many scores of colonies kept by the poor are dying. One old lady, who is over 75 years old, and has kept bees all her life, and her mother and grandmother before her, cried to me last week as she told me all her bees were dead, and she had never known such a thing as to be without bees, all her life. She felt "quite lonely," she said. I fear many will be in the same position before June 1st, as bees went into winter quarters so very short of stores.

LADY BEE-KEEPERS AND WRITERS.

We are getting an exchange of bee-writers, it seems. Mrs. L. Harrison is to write for the *B. B. J.* monthly, Mr. Cowan tells us. Her name seems so familiar to us all on this side that she is counted one of us, and does not come at all in the guise of a stranger. We have several very successful lady bee-keepers in England. I beg pardon—I mean the United Kingdom. I must not forget that, especially as one from the Emerald Isle has recently sent me a most flattering invitation to pay her a visit. Would you like to hear something about our lady bee-keepers? If so, I must get their consent and go on a "ramble" and tell you what I may see while on my rounds. I must first ask permission, though; it is rare fun sometimes, let me tell you, when I go to see my bee-keeping friends. They will first say, "Well! is it A. E.?" If I say, "No, only Mr. S—," (ah! you thought I was going to write it, did you?) they then know what is said is sacred; but if I, on the contrary, say, "You had better beware," then they are sure to look keenly in the bee-papers. But our lady bee-keepers, allow me to say, are not like yours. It is not that they are more modest—the bare suggestion would rouse a storm about my ears among your ladies—but until very recently, at least, it has been the fashion for our women to be kept out of any thing that savors of publicity, and our customs are so deep-rooted that very few indeed can be induced to step out into the arena of criticism and tell us what they know about bees, much less about themselves in any other sphere. In

MRS. CHADDOCK

you have a contributor who is unique; her easy, original style of dealing with personal matters is very charming to English readers who are not over-fastidious about conventionalities. But her courage in fighting the "professors" and some of their wild theories about evolution is especially charming to many of us who know how to rightly estimate much of what has been written in the name of science.

A BEAR-STORY.

I wonder how the grizzly bear knows where to find honey, and whether he is led by color or scent. Talking about bears and honey reminds me about a tale I heard the other day from Central Asia. It having been observed that several of the telegraph poles were dug up, a watch was set to catch the depredator, when it was found to be the work of a bear. This led to an inquiry as to the reason for the bear wishing to lay the telegraph poles to the ground. They were iron poles, and he could not climb them; and hearing the humming noise made by the wind in the glass insulators, it is supposed he imagined there was a bees' nest on the top of the pole, and so he dug the pole down to get at the honey. Perhaps Mrs. Chaddock can say if that was instinct or reason.

THOSE BIOGRAPHIES.

Well, before I close I wish to tell you how we like your bee-keepers' biographies by Dr. Miller. It is very interesting to read about all those whom we have known so long by name. The portraits make it doubly so. I was showing them to a friend the other day, and when he came to the editor of GLEANINGS he laughed aloud. On asking what was the cause, he said, "What a dunce I am! I see now his name is Amos Ives Root. I always thought he styled himself A. I. because he was a kind of 'double first,' just as the best steamships are classed 'A I' at Lloyd's shipping agency," and so he laughed again at his own folly, and said, "But he is A. I., for all that." AMATEUR EXPERT.

England, Feb. 25, 1889.

Friend E., your bear-story is a very good one—very ingenious the story is, whether it be true or only fiction. And so you have telegraph-poles made of iron, do you? That is something I never knew before. And so some of the friends across the water thought A. I. Root was vain enough of himself to call himself "A I." Why, the very thought of it gives me pain. I feel glad and proud of being one of the people—one of the great mass of humanity; but I never wish to be considered anywhere or by anybody any thing more than the commonplace individual which I am. If I thought it possible that anybody else might think so, I don't know but that I should write out my full name every time—Amos Ives Root. Thanks for your friend's concluding remark.

A. E. MANUM.

THE MAN WHO OWNS 700 COLONIES IN 8 APIARIES,
AND WHO IN 1885 PRODUCED 22 TONS OF
HONEY.

AUGUSTIN E. MANUM, whose picture is herewith presented, was born in Waitsfield, Vermont, March 18, 1839, consequently he was fifty years old March 18, 1889. When Mr.

Manum was nine years of age his father died, leaving him only the inheritance of a sound mind in a sound body. At an early age he apprenticed himself to a harness-maker, and afterward continued in the business in the village of Bristol, Vermont, where his home now is, until he abandoned it for the bee-business. In 1859 he married Miss Rosilla M. Pierce, the beloved wife and kind mother whose death a short time since casts a shade of sadness over the home.

When the war broke out he enlisted in Co. G, 14th Vermont regiment, as a nine-months' man. He served at the battle of Gettysburg, where his comrades in line on either side were killed; his own gun was shattered, and he was hit four times.

In March, 1870, a friend desired to lend him "Quinby's Mysteries of Bee-keeping." Reading the book, his enthusiasm upon the subject was kindled, and he immediately purchased four colonies of bees and began the study of apiculture. Having a natural aptitude for the business, and a love for the bees, he was successful from the first. His apiary so rapidly increased, that, at the end of four years, when he had 165 colonies, he sold out his harness-business and began the pursuit as a specialist. At this time he was using a 4-lb. honey-box. Soon came a demand for a smaller package; and as sup-

ply-dealers were scarce, he determined to manufacture them himself. In casting about him for seasoned lumber of a proper thickness, he found, to his great delight, a quantity of poplar plank. The result was a lot of poplar sections, the first ever made. Mr. A. I. Root was much pleased with a sample sent him, and published a description of them at the time in GLEANINGS. This notice brought in inquiries and orders by the score, and Manum the bee-keeper became Manum the supply-dealer. His first order for sections from out of the State was from Mr. L. W. Baldwin, of Missouri, at \$11.00 per 1000. Soon the demand for these sections became so great as to call for a more rapid method of manufacture; and Mr. M., having purchased a mill with abundant water-power, invented a machine working automatically, which sawed the sections accurately and so smoothly that many im-



A. E. MANUM.

plained them sandpapered. The supply-business and the bee-business soon grew to such proportions that it was impossible to personally manage both, and the factory was, in 1884, sold to the present proprietors, Messrs. Drake & Smith. Since this time Mr. Manum has devoted all his energies to the production of comb honey, increasing his plant until his bees now number over 700 colonies in eight apiaries. He always winters his bees out of doors, packed in the "Bristol" chaff hive. For the eight years previous to 1887, his average loss in wintering for the entire time was only $3\frac{1}{2}$ per cent. He uses exclusively a frame about $12\frac{1}{4}$ x 10 inches, outside measure, which he considers the best for practical purposes in his apiaries. His hive, the "Bristol," is almost entirely his own invention, being specially adapted to the perfect working of the system upon which his bees are managed. In 1885 his production was 44,000 lbs. of comb honey, an average of 93 $\frac{3}{4}$ lbs. per colony, all made in twelve days from basswood.

Because of the failure of the honey sources the past season, about 14,000 lbs. of sugar syrup was

fed the bees to prepare them for winter. He still has much faith in the pursuit, although the past three successive poor honey years have told heavily upon his enthusiasm.

Mr. Manum has one son, a fine young man, just of age, who promises soon to be a great relief to the father in the management of his extensive apiaries.

Mr. M. is of medium height, with dark complexion, hair, and eyes. A kind friend, an upright gentleman, and a thorough business man, he has attained an enviable position among the bee-keepers of Vermont, where he is so universally known. His extensive operations, his uniform success, and his practical writings, have also given him a national reputation.

J. H. LARRABEE.

Larrabee's Pt., Vt.

Friend L., I well remember when Manum's samples of Vermont white poplar came into our office. We had been for some time making sections then ourselves. This white poplar "took the shine" off from any thing in the line of basswood so completely that at first I was inclined to feel a little bit jealous; but it did not take me long to decide that I would tell our readers the truth about it, no matter how much it hurt our trade. I do not remember the exact words of the editorial, but it was to the effect that friend Manum's white poplar was nicer than any thing we had ever made, and, I believe I added, nicer than any thing we could *hope* to make, unless we could get that same white poplar. In a little circular that came along with the sections, the printers had put it "popular" instead of *poplar*, and there was no little merriment about friend Manum's white "popular" sections; and indeed they *were* "popular" after my editorial went out. Years passed; and while attending the National Convention in Detroit, a large fine-looking man came up and put out his hand, and said it was a pity that, after all these years, he too could not have the pleasure of shaking hands with his benefactor. I asked him what he meant by "benefactor." "Why," said he, "Bro. Root, I am the man who made those white-poplar sections to which you gave such a boom by your kind editorial; and now I want to say to you, that, although I have not yet amounted to *very* much, what little I have done I owe greatly to that kind and disinterested editorial." And then there was a big laugh all round. When I wrote it I had no acquaintance whatever with friend M. I only knew that the beautiful smooth pieces of wood that almost rivaled white paper in whiteness were, both in workmanship and the quality of the wood, beyond any thing I had ever seen before. White poplar, from its nature, is not suitable for one-piece sections, therefore they must always be made in four pieces; and as the material is somewhat scarce it is not likely they will ever be furnished for much less than double the price of the basswood sections. The bee-keeping world, however, owe a debt of gratitude to friend Manum for furnishing the finest section, so far as I know, that has ever been made anywhere. Dr. Tinker, I believe, finds on the hills in his vicinity a kind of white poplar

that very nearly equals the Vermont poplar. It may be well to say, also, that, if the doctor's sections are lacking any in quality of material, they excel in *workmanship*, perhaps, any thing the world has yet produced.

BEE-FEEDERS.

FRIEND HEDDON'S COMMENTS ON SOME THINGS IN MARCH 15TH ISSUE.

NOTICE on page 216, in an illustration and translation from a French bee-journal, something regarding feeders. Now, while I have had considerable experience with feeders, both in feeding bees large quantities for wintering and feeding back extracted honey to finish thousands of pounds of sections, I wish to say to your readers that I found a feeder based on the principle of the one shown in the cut as in many ways unfitted to the instincts of the bee. In the first place, the two little feed-troughs do not afford sufficient space for the average colony of bees to do the rapid work required. Then there is no need of the wood feeder being lined with metal. Not one in twenty, if properly made of wood, when constructed as they should be, will leak; and if one does leak it will not leak outside the hive, but all within, where the few drops will be picked up by the bees and no robbing be incited. The only valuable principle I discover about this feeder is the reservoir plan, wherein the bees rise up, rounding over a lowered partition, taking the honey from the top, the reservoir keeping the feeding-troughs full, by force of gravity, the same as the stand-pipe waterworks system. Let me say to your readers, that it was not only "several years ago," but a good many years ago, that I discovered this principle. While I know it was original with me, I do not know whether it was prior or not. I think it was, for, so far as I have been able to discover, there is nothing in print touching any of the principles until after I had used it for several years, and also, I believe, described it in bee-journals. With this communication I inclose you an engraving and description of the feeder, and on the second page is clearly outlined what I claim as my invention, whether prior or not, not patented, I want you to understand. After reading it, you will say in your foot-notes what you believe concerning it.

UNPAINTED HIVES.

About fifteen years ago the same idea entered my mind in regard to painting hives, which I find in the article of G. M. Doolittle's, beginning on page 217. Upon the strength of my new supposition I made between thirty and forty hives, leaving them unpainted, and used them for several years, carefully noting results. I had lost quite a per cent of my bees with the winter disease known as bee-diar-rhea (the only winter difficulty, in my mind, worthy of mention). While I found, by actual experiment, that omitting the paint allowed the hives to become so dark in color that they drew the sun's rays, piling up the heat, making them very objectionable in hot weather in summer, and that the rain, so far as it could get at them, had caused them to become rotted at the joints, I found no difference whatever in regard to the successful wintering of my bees. It is to me another of the fine-looking theories which have to vamoose before experience. It appeared to my mind, before it re-

ceived my more careful attention and experiments, the same as it does to Mr. Doolittle's. In your foot-notes you mention the success of the chaff hive. Let me ask you to make this experiment: Take a colony of bees that you have managed all summer in Simplicity hives, along late in October, about a week or so before the bees cease to fly, and set them over into a chaff hive, and see how they winter then, after that disturbance. I have repeatedly noticed, that, when a hive is thus disturbed, especially after the brood-frames are opened and the combs interchanged, late in the season, these bees will not winter so well as those not disturbed. This says to me, "Pack your bees early." I presume you remember that I am radically an anti-chaff, or tenement-hive, bee-keeper. During summer management, all my hives must be very light and most readily movable, for I propose to work two hives with the same expenditure of time and muscle that is usually applied to one.

YOUR DOVETAILED HIVE.

Under this head, on page 234 I am pleased to learn that you will use the honey-board single bee-space, leaving it flat on one side, and the bee-space in the brood-chamber at the top; and in order to make this brood-chamber and the surplus receptacles readily interchangeable, you have made a bottom-board with a bee-space in that. That is exactly like my new hive. That is just what I did, as you will see by the cut I inclose. You will also notice the style of cleats I nailed on, which style furnishes a more solid base, and gives a narrow bearing to avoid crushing the bees. Now, if you had your brood-chamber in two sections, each containing a complete set of shallow frames, with side frames tightly fitting the case, but reversible at will, you would just have my new patented hive, if made and used as and for the purposes specified. I fear, friend Root, that your investigations and reasonings concerning hives will end up as it did with the honey-board. You will first oppose, then tolerate, and finally embrace the new hive in question.

Dowagiac, Mich., Mar. 22, 1889. JAMES HEDDON.

Thanks, friend H. Your first objection to the Miller-Warner feeder (i. e., if you included it with the one illustrated on page 216 of last issue) with us does not hold true in practice. We fed several barrels of syrup last fall, and, as a general rule, the bees emptied the feeders in a single night, no matter whether the feeders contained 5 pounds or 25 pounds of syrup. In some instances we filled the feeders entirely full (a capacity of 30 pounds) all of which was taken down and deposited in the cells in less than 12 hours. Is not this rapid enough feeding for all practical purposes? It is true, as you say, there is no need of lining such a feeder with tin; but if you will refer to our descriptive remarks, and to the engraving on page 818, for 1888, you will see that the feeder we manufacture is made entirely of wood. The great point we urge in favor of the Miller feeder is, that the passageway affording access to the feed is located directly over the center of the brood-nest, and this passageway is closed at the top by a board, so as to confine the heat. Accordingly feeding can be done in cold weather comparatively. That this is not mere theory, is evidenced by the fact that we have had colonies, by way of experiment,

empty these feeders, during freezing weather, in chaff hives.—As to the Dovetailed hive, we are pleased that you like the change which we have made in the matter of the bee-space. We did not take the idea of putting the bee-space on the bottom-board by means of cleats, from your new hive. We suppose you know it is an old idea. Years ago, before we adopted the bevel on the Simplicity hive, we used such a bottom-board.—In addition to what Ernest says, I will add I objected to such a bottom-board then and do now, because, if made in that way, the bottom-board and cover will not be exactly alike. The simple features of the Simplicity hive are, that there are only two pieces or two things to the hive—a body and a cover. The body is an upper story or a lower one, as you choose; and the cover is a bottom-board or a cover as you choose. When you have a stock of one you have a stock of the other.

THE UNITED STATES HONEY-PRODUCERS' EXCHANGE.

THE BENEFITS OF THE STATISTICS.

THE above association was organized under the auspices of the New York State Bee-Keepers' Association, in convention at Utica, N. Y., Jan. 17, 18, and 19, 1888. Its object is to furnish to its members prompt and reliable information as to the honey crop throughout the United States. Six or more reporters are appointed in every honey-producing State, who forward their reports to the Secretary on the first day of May, June, July, August, and September. The Secretary compiles these reports from each State (separately), and on the 10th of the month forwards to each member of the "Exchange" the reports from the whole United States. These statistics embrace the increased or diminished number of swarms going into winter quarters, loss in winter and spring, condition of bees at beginning of season, proportion of full crop of honey gathered, both white and dark, comb and extracted, the quantity of honey in the different markets remaining unsold, with price, etc.

The advantage of this information is too apparent to require any elaboration here. We would only say, that if you know the honey crop the market is yours, and you can secure prices in keeping with the amount of honey which you know is on the market. The "Exchange" has met with great favor among bee-keepers, several members present at Syracuse (Dec. 11–13), and others from abroad, among whom are many of the largest honey-producers in the United States, stated that the information furnished by the reports during the past season had been worth many dollars to them in the disposal of their honey, while other prominent bee-keepers pronounced it the best thing that ever came from an association of bee-men. Feeling assured that you will wish to reap your share of the benefits of these statistics, we extend a cordial invitation to you to join the "Exchange" by forwarding your membership fee to the Secretary, G. H. Knickerbocker, Pine Plains, N. Y., which will entitle you to the reports for one year; and also, if you can attend its meetings, to all the advantages of membership in the New York State Bee-Keepers'

Association, without further expense. The fee is one dollar per year, but it is hoped that enough bee-keepers will join so that the dollar will cover the cost of two years' reports, in which case you will receive the same for that length of time. Three or four hundred new members are yet needed to bring about this result. Each member will also receive, with the report sent out May 10th, a list giving the names and address of all the members and reporters. These statistics will not be furnished to the journals for publication, but will be sent to members only. We could not meet our expenses were we to make public our reports.

The "Exchange" has the indorsement and support of such well-known men as Dr. Miller, Dadant, Grimm, Manum, Crane, Cushman, Vandervort, Mason, Tinker, Pond, Cary, Root, Hetherington, Cook, Martin, Barber, Isham, Doolittle, Clark, Aspinwall, Van Deusen, Heddon, Taylor, Hilton, Cutting, Valentine, Demaree, Shuck, Foster, Secor, Wilkins, Muth-Rasmussen, and others equally well known.

P. H. ELWOOD, *Pres.*,
I. L. SCOTFIELD, *Vice-Pres.*,
C. G. DICKINSON, *Treas.*,
G. H. KNICKERBOCKER, *Sec.*

We gladly give place to the above, and hope the bee-keepers will not be slow to give it their indorsement by way of subscriptions.

CAPT. HETHERINGTON

AS A BEE-KEEPER AND AS A SOLDIER.

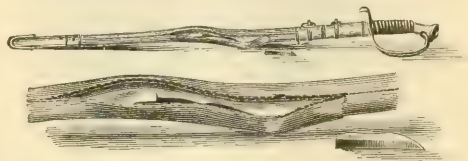
CAPT. HETHERINGTON was one of the founders of the Northeastern Bee-Keepers' Association (now the New York State Association), one of the oldest if not the oldest organization of its kind in the country, and, after the death of Mr. Quinby, its president. He was also present at the organization of the National society, and, later, elected president, but declined this honor on account of poor health. At one time he was associated with Mr. Quinby in giving addresses on bee-keeping before farmers' clubs in some of the principal towns of Central New York. He has a good command of language, and is a clear, forcible writer and speaker; and it is to be regretted that time and strength do not permit him to make a more free use of his gifts in this direction.

Socially, and as a host, he has no superior and very few equals in the fraternity; and many who read this will testify to the excellent treatment received at the hands of himself and his accomplished wife. The captain enjoys his home life and associations better than the most of men; and while he takes great pleasure in entertaining his bee-keeping friends, he does not always feel reconciled in having the privacy of his home invaded by the professional tramp, who, as soon as he purchases a swarm of bees, must hie away to the most celebrated authority for instruction instead of consulting some A B C book of bee culture, written for his benefit. Of late years Capt. Hetherington has sought to remain unknown, and to avoid notoriety; not, as he says, because he has nothing to communicate, but because it was necessary to economize in time and strength.

The captain is a regular attendant of the Presbyterian church, of which his wife is a member. He is also an officer and worker in the Sunday-school, which his three children, two boys and a girl, at-

tend. He likes a religion of a practical, working kind, that bears immediate fruit; that raises the fallen, feeds the hungry, cares for the sick. At the same time he believes there is a divine side to religion, with duties beyond those to our fellow-man, and with privileges and enjoyments and helps not found elsewhere. Capt. H. is an active temperance worker, and has been for many years a member of the Good Templar order. He also ranks well up in the Masonic order, and has been several times Master of Cherry Valley Lodge.

We must not fail to mention his splendid military record. October 12, 1861, he enlisted in Company D, 1st Regiment U. S. Sharpshooters, Col. Berdan commanding. It was from no boyish freak, but from a deliberate sense of duty, that he left the then most extensive bee-business in the land, and entered the service of his country. The spare time of the summer before had been spent in target-rifle practice, and his mother had made his underclothing previous to enlistment. But war is an easy thing to write about, but a terrible thing to deal with. Before one year had expired, of nine intimate friends from Cherry Valley who had entered the army, four were dead, four discharged for disability, and Captain Hetherington alone remained in the service. General Sheridan says, "Courage measures the power the mind has over the body." The captain stood at his post in a most dangerous branch of the service, when most men would have been in the hospital, or discharged for disability. His army surgeon has left on record the following tribute to his bravery: "On the 12th day of May, 1864, at Spottsylvania, he became very much exhausted by reason of chronic diarrhea, but declined being relieved from duty; and although wounded in the head he heroically remained in command of his company." And again, "On the 22d day of June, 1864, in action before Petersburg, Va., he received a serious wound in the hand, which disabled him from duty. At the time of receiving said wound he was suffering from chronic diarrhea, and was so weak and debilitated by it that he was a better subject for the hospital than the battlefield." This was the wound received when his sword was shattered by a bullet, and a piece of the weapon was driven through his hand. The engraving shows this piece lying by the broken sword.



THE SWORD WHICH SAVED THE CAPTAIN'S LIFE.

The portrait shows the position of the sword and hand. He had for the moment thrown his rubber blanket* across the hilt of his sword, and that over his shoulder, very much as a tramp would carry

*Before an engagement, an officer transfers to his darkey or servant all luggage—retaining only his rubber blanket and haversack, for use in case the aforesaid gentleman fails to put in an appearance after the fight. His blanket is made into a small roll and tied at the ends, then carried across his shoulder and breast as a sash is worn. In hot weather this is oppressive; and for temporary relief, although in the midst of a hard fight, the captain had thrown his rubber across the hilt of his sword, and that across his shoulder.

his pack. Providentially the bullet, so well directed, found a lodgment in his sword and hand instead of his heart, which, you notice, lay just beneath. Major General Wilkenon, of the British Army, on seeing this sword, said that he had seen many of the heirlooms of prominent British families, and the relics sent home from twenty years of active service, and added, "Among them all there are none that I consider as fine a personal relic as this broken sword." The captain threw this away as being of no further use to him; but it was preserved by his men. He also received a gunshot wound in the shoulder, in the second battle of Bull Run, Aug. 29, 1862. Entering the service a private, he came out a captain, in that division of the army when a captaincy meant [in some ways as



CAPTAIN HETHERINGTON DURING WAR TIMES;
THE POSITION OF HAND AND SWORD WHEN
STRUCK BY THE BULLET.

much as the command of a whole regiment would in some other branches of the service. A whole regiment of sharpshooters was seldom posted together; but companies were used instead of regiments. The sharpshooting service was a man-to-man conflict, and it required great care and skill in posting a company so that they would not be picked off by the opposing riflemen. The captain of Company D was killed in the battle of Gettysburg, July 3, 1863, and Lieut. J. E. Hetherington was recommended for promotion by Col. Berdan, from the battle-field. At the close of the Gettysburg campaign, an order was sent to the commanding officers of the army, to report to the Secretary of War the names of such officers and men as had distinguished themselves for bravery and meritori-

ous conduct during the campaign. The name of J. E. Hetherington appears in this list, and furnishes the best of proof that his promotion was well earned. While in the army the captain was in all the principal battles of the Army of the Potomac, besides many minor engagements which will never be recorded. He was discharged from the service, Sept. 20, 1864, by reason of disability from wounds received in action. For two years after, it was a question whether he would live; but he gradually regained a larger part of his former vigor.

In personal appearance the captain is tall and commanding, and looks every inch a soldier. Had our army been more largely composed of such men, the end would have come sooner, and general pension bills would not now languish. With more years, undoubtedly higher rank and greater honors had come to him. The bee-keepers of this country may feel honored that they have enrolled in their ranks one who has performed so distinguished service in the great contest.

Starkville, N. Y.

P. H. ELWOOD.

It was my good fortune to meet Captain Hetherington at a bee-keepers' convention in Cleveland, O., in December, 1871. This was only one year after the National Convention was started, and the bee-men of the United States were, a good many of them, comparatively slightly acquainted with each other. The only time I ever met father Quinby in person was at this convention. I believe it was the first time I got acquainted with Prof. Cook. A. F. Moon was there; also W. F. Clarke, Dr. Bohrer, Dr. Hamlin, Aaron Benedict, Gen. D. L. Adair, N. C. Mitchell, Mrs. Tupper, Mrs. Savery, and R. C. Otis. Rev. L. L. Langstroth was absent on account of illness, and so W. F. Clarke occupied the chair. The memories of that convention are very pleasant. Although there were a few things that marred the harmony, yet there were but a few. H. A. King and R. C. Otis were at that time having trouble about the Langstroth patent. Among the exhibits of bee-hives, Otis brought in an old weather-stained American hive, and in an ironical way commenced to extol its merits. As a matter of course, a part of the convention decided with Otis and a part with King, and there seemed to be great danger, for a time, of hard feelings if not hard words during the session of the convention. The president, however, happily suggested that we close the session by singing the doxology. The effect of that simple hymn of praise acted so like oil on troubled waters that I never quite got over it. I was not a Christian at the time, but I then got a glimpse of the power of Christianity to subdue and conquer evil. I did not have a chance to get much acquainted with Captain Hetherington. I can only remember that, when the essays were very long and dry, as you may remember they used to be, he acted somewhat like a schoolboy under restraint; and, if I mistake not, he once started a little fun, even during the reading of these essays. If we could get him to attend the conventions of the present time he would find a vast change in them from what they were 18 years ago.

HEADS OF GRAIN FROM DIFFERENT FIELDS.

DO WE NOT MANIPULATE OUR BEES TOO MUCH?

MY experience is, that most of us spend too much unnecessary labor on our bees. My plan of late years has been to have small hives, 7 and 8 combed L. and 8-combed Gallup (I use both kinds). Just as soon as the hives are full of bees I put on one crate of sections and let them swarm naturally. I have plenty of hives ready, and when I do not care for increase I double up two swarms to each hive, hiving them on two crates of sections, with metal queen-excluding board between the lower hive, filled with frames of foundation. In this way I always have good young queens in my old colonies, with plenty of stores for winter. Bee-keeping at the present low price of honey is like farming in the West—we must save all the labor possible. When I first moved to Kansas, some years back, I thought our Eastern mode of farming would do there; but I soon found it was money out. I soon changed, and followed the farming of the country—at least, such as those followed who made a success of it. So it is with bee-keeping—each section of country has to be learned, and then they must be run to suit.

T. G. ASHMEAD.

Williamson, N. Y.

Friend A., perhaps almost all of us perform unnecessary labor with our bees; and I have sometimes thought a great deal of hard laborious drudgery is constantly being done when there is no reason for doing it at all. Let me give you just one illustration. We have on our grounds a movable pig-pen or pig-yard, made of galvanized iron wire. This pen is about 10 x 16 feet. When not in use for pigs, one of our boys uses it to confine sitting hens. A few days ago he raised up one side of it to let a sitting hen out that had been confined for a sufficient length of time. As he stood near the opening, she did not come out; therefore he called a stout man from his work, a little distance away, and asked him to hold up one side of the pen while he flopped his arms and "shooed" on the other side, to make biddy go out. Either from stubbornness or from lack of sense, however, biddy did not embrace the opportunity of regaining her liberty. At that time I came up.

"Why, H., why didn't you put a stick under the edge of the pen, and go about your other work and leave the hen to go out of her own accord, when she feels like it?"

Both men went back to their work, without making any reply whatever. Now, I meet almost constantly with people who are doing useless work—holding a heavy burden, as in the above instance, where nothing is accomplished at all, or, perhaps better expressed, where the same result might be attained without taking time or lifting heavy burdens at all. I sometimes think that, if people were working for themselves, they would use their wits more; but when I see people who are working for themselves, and working hard to make both ends meet, I will find them using strength and time, a great part of their time, where

a little thought would have saved both. Applying this same thing to bees, we lose by neglecting them at times; and, again, we disturb them when the same thing could be accomplished without disturbing them at all. Necessity is not only the mother of invention, but it is a good school where we are bright enough to be taught by it.

TRANSFERRING IN WINTER SUCCESSFULLY.

In GLEANINGS, Mar. 15, I find John Hobbs writes about transferring in winter. I have had some experience in this line this winter. A neighbor of mine gave me the bees from a box hive if I would give him the honey—or, rather, take the honey for him. I drove the bees into a soda-box and brought them home. I weighed them when I got home, and there were 2½ lbs. of bees. I turned them loose on 4 combs of sealed honey and one comb without any honey. This was done Dec. 11, 1888. Feb. 4, 1889, the queen was laying well. At this time they are breeding well. This colony is as strong in bees now as any I have. My bees have wintered well, and are building up well; are gathering some honey from peach-blossoms.

B. C. GRIFFITH.

Griffith, N. C., Mar. 25, 1889.

Why, friend G., as I understand it you transferred only the bees and not the combs of brood. This is a very simple matter, and can be done at any season of the year; and, in fact, so can combs and brood be transferred if one is careful to observe all the conditions.

REPORTED DEATH OF A YOUNG LADY, FROM A BEE-STING, A MISTAKE.

In Notes and Queries, Dec. 1, you publish a report from an American journal, *Old Homestead*, that would be apt to lead the readers of GLEANINGS to believe that a young lady named Ella Baker was stung to death by a bee. Now, you know I don't say that you believe such a thing could take place. I feel sure that you are of the same opinion as myself—that a single bee-sting could not possibly cause death to a human being. The report is just like a good many more (artificial section honey, for instance); when they have gone the rounds of several publications they don't lose much, but rather the reverse. In the above case the bee-sting had nothing whatever to do with the young lady's death. Being a close neighbor, just a question of a mile, and knowing the poor lady personally, also having to report on the case for several journals, I am somewhat of an authority. The doctor's certificate stated that death resulted from convulsions and syncope—nothing about a bee-sting, you see. Her sister died at about the same age, in exactly the same manner, a few years ago. She was not stung. Miss Ella Baker received a sting on the side of her nose on a Friday morning, early. She did all her household duties during the Friday and Saturday. I myself saw her on Saturday morning. There was just a little swelling, but hardly observable, and no pain was felt beyond the first prick. On Saturday evening, late (9:30), she lay down on a sofa, and while there was seized with convulsions, and died almost instantaneously. She had been stung twice before, but it had no more effect upon her than the last time. There was no swelling observable after death; the undertaker particularly noticed this, and informed me of the same. This young lady has frequently been present when I manipulated

their bees. I used to drive them for her father when they wanted the honey, as they kept them in what in England are called straw skeps. I think the above facts ought to be known, as reports of death from bee-stings are apt to discourage would-be bee-keepers. It has also the effect of frightening one's neighbors (non-bee-keepers). I know that, just when the above sad event happened, people fought shy of my apiary for some time.

W. B. WEBSTER.

Binfield, Berks, Eng., Feb., 1889.

Friend W., we are exceedingly obliged to you. The above incident brings out vividly two important points; the first is, how such things increase as they travel from mouth to mouth; and the saddest part is, that the newspapers are so ready to give credence, or perhaps care so little whether a story be true or false, providing it is sensational. The second point is, that, through the agency of GLEANINGS, with the circulation it now has, we may find somebody in almost every neighborhood to give us a correct statement in regard to such reports. I think, friend W., you are a little too strong in saying that no one was *ever* killed by the sting of a single bee. We have had quite a few reports indicating that this may at times happen. In your own country, if I am correct, a man died, not long ago, from suffocation caused by the swelling produced by the sting of a single bee.

WINTERED WELL; THE TEXAS STATE BEE-KEEPERS' ASSOCIATION.

Bees have wintered well in this section. No loss as yet. For the last two weeks we have had some pretty spring-like days, and the bees were out in full force, gathering pollen from the elms. The horsemint failed last year, but the bees gathered an unusual amount of honey from the cotton bloom. As little as is said about it, the cotton is one of our best honey-plants. The Texas State Bee-Keepers' Association will meet at Greenville, Hunt Co., Texas, at the apiary of W. R. Graham, May 1st, 1889. Bro. Root will meet a hearty reception if he will come.

J. N. HUNTER.

Celeste, Texas, Feb. 28, 1889.

A SIMPLE AND EFFECTIVE WAY TO BIND BEE-JOURNALS AND OTHER PERIODICALS.

I have a way of binding my bee-journals that may be new to some of the readers of GLEANINGS. It was suggested to me by Mr. J. Y. Detwiler, of Florida, when he was at the International Convention at Columbus last fall. Get common safety-pins that are about an inch and a half long in the clear, and run one of the pins through near each end of the journal, and as far from the back as the pin, when shut, will allow. The pins can be bought for five cents per card, that has a dozen on. I use an Emerson binder till the year is complete, and then take the journals from the binder and put in the safety-pins so as to have the binder to use for the current year.

A REMEDY, BUT NOT ONE FROM A BOTTLE.

Another piece of information, though not relating to bee-keeping, may be of interest to young bee-keepers, many of whom may be tormented in "body (face) and mind" by pimples on the face, as most young men are at times, when otherwise in good health. After shaving, take a cotton or linen cloth and dip it in water as hot as can possibly

be borne, and apply to the face, and hold it there while it feels real warm, repeating three or four times each time of shaving. Young ladies who are similarly afflicted can try the remedy without shaving, if they like, say two or three times a week. Friend Root, this is a good medicine, and it doesn't have to be taken from a bottle either, so you needn't say any thing against it.

Auburndale, O., Feb. 28, 1889.

A. B. MASON.

Friend M., please give our friend Detwiler a vote of thanks. He is one of these odd geniuses, and it is just like him to have thought of a safety-pin to take the place of a binder. I feel proud of your compliment, doctor; that is, to the effect that I am a little suspicious of any thing that comes out of a bottle.

A PECULIAR CASE OF COMB-BUILDING; STEALING HONEY FROM HIVES.

After extracting from both sides of a thick frame of honey it was still very heavy, and I found a middle row of cells. I suppose it must have been built all on one side, and then, in moving it, have been given space on the hollow side.



I am a good deal away from home, and some one robs my bees. After cutting out the honey they scatter the frames anywhere, so that I have only three stands left, and expect to find those served the same way. I had lots of good dogs, but they are soon poisoned. I wish I knew how to catch the villain.

I wonder whether any of your lady correspondents have used a knitting-machine. Do they do good work?

I had a catalogue from W. Hill & Co., 100 West Madison St., Chicago, in which they quoted 20 cents per dozen for Willimantic thread. I sent \$2.40 for 12 dozen, and received a parcel on which I paid \$1.40 express charges, and it contained a miscellaneous lot of thread, but not one spool of Willimantic, and all so rotten that it is useless. I have written twice, and they do not reply.

GEO. E. HALES.

Lytle, Tex., Feb. 6, 1889.

Very thick combs often have a middle section, as in the diagram, friend H.—As knitting-machines are rather out of our line, I would advise those who know about them to answer direct. We give the name of the firm you mention, that others may not lose money in the way you have done.

CROSS HYBRIDS.

I have enjoyed your humorous sketches from time to time, and especially the Dutchman's Mule. If your artist could have seen me last spring transferring hybrid bees by drumming them from their old box-hive home, he could have had a sketch equally humorous. I knew they were *very* cross, so I fixed my smoker, as I thought, put on a veil and gloves, tied my coat-sleeves tight around my wrists, and, inverting the hive, placed the new one

on top, and commenced drumming. I had done so many a time with good results, but these were hybrids, and instead of going up they came out mad as hornets, and alighted on me until I was almost coated with them, biting and stinging the woolen coat I had on. I reached for my smoker, but, alas, it had gone out in a short time, and now the bees were finding a way under my coat, and stinging me very much. I stomped, kicked, and brushed them, but to no avail. They were flying around me furiously. I ran off about fifty yards, and found matters getting worse. I opened my coat, threw it back to discard it and bees together, forgetting it was tied around my wrists. There I was, coat off and behind me, hanging to my arms. If I had been handcuffed it would not have been much worse; at the same time, bees were stinging me about the neck and body. I finally liberated myself by tearing my sleeves badly, leaving the coat with many angry bees on it. I have these bees yet, but they are difficult to manage, even with the most precaution.

GEO. W. GEASLEN.

Oakland Mills, Md., Feb. 11, 1889.

Friend G., I can not understand, from your account of the affair, that you first smoked the bees thoroughly before inverting the hive. If you did not do this, you certainly ought to expect to be stung. Instead of waiting for the smoker to go out, you should have smoked the bees until you got them to fill themselves with honey before you did any thing with them at all. It astonishes me to read accounts of people being stung, much the way you were, just because they omitted or neglected, or did not know how to use the smoker. It is next to sheer madness for anybody to stir up a colony of bees first and then hope to quiet them down with smoke afterward. Of course, some colonies of bees at certain times of the year will bear it.

WHEN TO RENEW OLD COMBS.

I see that your journal is still improving, and is of vital interest to every one handling bees. I wish you to give an article on when to clean out old hives and start them anew. I have some in which the brood-comb is so old and thick that bees do not seem to want to raise brood in it, and will work above. If I cut it all out in the spring, will they make honey this season any more than a new swarm?

H. ROBERTSEN.

Henderson, Tenn., Feb. 21, 1889.

Brood-comb can be used a great many times, without being renewed; and when it must be renewed I would take out only the heaviest and thickest, and that which has many imperfect cells. To cut out all of the old comb at once would be a great mistake. It would cripple your bees, and the probability is that a great part of the old comb would be much better for brood-rearing than the new.

A COLONY OF BEES WITHOUT A HIVE, AND ATTACHED TO A LIMB IN JANUARY.

Inclosed please find a newspaper article about a swarm of bees in January. How is that for Southern Illinois? Bees had a fly almost every week this winter.

M. H. KUEHNE.

Olmstead, Ill., Feb. 11, 1889.

A few days ago, as Silas Coram was walking up the river-bank on the opposite side of the river

from this place, he discovered a swarm of bees hanging on the limbs of a bush on the brink of the river, about ten or fifteen feet above the water. At first he was inclined to think his optics were deceiving him; but on investigating the matter he found a good-sized swarm of bees apparently well satisfied with their place of abode, and almost as lively as if it were summer, or the mild days of early autumn. When our young friend reached home he reported his strange find to his father. A day or two after, the father and son took a hive to the place, and succeeded in hiving the whole swarm. To their astonishment they found a great deal of comb and considerable honey. The fact that there was honey at the place, proved beyond a doubt that they had been there several months. — *Goconda Enterprise*, Ill., Jan. 31, 1889.

There is nothing very strange in the above. Bees cluster on the trees in California or in warm climates, and build combs sometimes, and stay several years. They also do it now and then all through the Northern States; and if they had plenty of old tough comb it would be nothing strange if they should winter over in such a locality. As our winter was very mild until the first of February, it is not surprising that they were alive and well. Possibly with plenty of stores every one would have come through had they not been disturbed.

DYSENTERY; NOT A SERIOUS CASE OF.

I wrote to you some time ago about dysentery, and now two other hives are a little daubed on the front. They seem to be healthy, and look well. Now, the thing is, I have been in the habit of going to see them very often, and arousing them. Would not that cause them to gorge themselves with honey, and cause them to come out and soil the outside of the hive? or is it possible that they have got the dysentery? The honey that they have was gathered from the Spanish needle. Is not that good to winter on?

WARREN WRIGHT.

Ludington, Mich., March 18, 1889.

As nearly as we can judge from your letter, we should say that you have been tinkering with your bees too much. The stores they had were not necessarily bad. If the hive is not soiled to any appreciable extent inside, you do not need to be alarmed. Bees in healthy condition will generally, in early spring, soil the outside of the hive to a slight extent.

THAT WINTERING PROBLEM, AGAIN; SUGAR STORES VERSUS BEES.

I am obliged to friend Heddon for his reply to my inquiry relative to the wintering of bees. He can winter a colony year in and year out as successfully as he can his buggy-horse, but thinks at too great a cost, and hopes that "I see the point." Yes, I even feel the point and own the steel. Briefly, Mr. Heddon, p. 90, objects to extracting honey which has a low value and slow sale, to feeding sugar which has a cash value. If his object were building up an apiary, would it not pay him even to extract closely and feed sugar? One dollar's worth of best sugar fed at the right time, bees carefully hid away, ought to winter them, when they surely ought to be worth five dollars in spring.

Beason, Ill.

J. HAMILTON.

You are right, friend H. It is very poor policy indeed to let bees starve to death, when, by investing in sugar to the extent of one-fourth their value, or less, they could be saved.

A FLOOD IN CALIFORNIA.

We have just had a flood, from March 16th to 17th; 10 inches of water fell at our house, making $22\frac{1}{2}$ inches to date. One mile further up the Sespe they got 13 inches. Some houses were washed away in Santa Paula. I suppose it was very disastrous in Los Angeles. The trains are stopped on account of washouts. The papers call the creek in front of our house the "Raging Sespe." The name was not appropriate when you were here; but if you could have seen it on the 16th, bounding and roaring like Niagara, you would not wonder at the Indians thinking there were "devils" in it. I am acting now on the supposition that we shall get a honey crop this season.

J. F. M'INTYRE.

Fillmore, Cal., March 18, 1889.

REPORTS ENCOURAGING.

NO LOSS IN WINTER.

LAST fall I had 42 good swarms. I packed part of them in fine oat straw and chaff, on their summer stands, and put part of them in my bee-cellar, which is in sandy soil, and properly ventilated. On the 18th inst. I took 5 swarms out of the cellar; on the 20th I took out 3, and on the 22d I took out the rest of them; and now on this 23d day of March I have just 42 good swarms, gathering pollen quite lively.

Coral, Mich.

L. W. ITZENHOUSER.

You ought to see the bees working on the red-mapple bloom, getting honey and pollen.

Lincoln, Tenn., Mar. 13, 1889.

T. P. GILLHAM.

ONLY ONE DEAD OUT OF SIXTY.

My bees, sixty swarms, have wintered well. Only one is dead out of sixty. I had to move them out of our village 2 years ago, away up on a side hill, since which I have not done so well.

J. E. TODD.

Unadilla, N. Y., March 15, 1889.

WINTERED WITHOUT LOSS.

Bees have wintered here well this time. I wintered 93 on summer stands, and have not lost any; lost only 4 queens. Bees have been very busy on soft maple and elm. Red-bud is just bursting.

Alma, Ill., Mar. 19, 1889.

RICHARD EDMONDS.

COLONIES NEVER WINTERED BETTER.

I am happy to say that our success in wintering my bees has never been better. We went into winter quarters with 48 colonies; and to-day, March 18, 45 are in good condition; 3 died of starvation, which was my own fault. The bees are busy bringing in natural pollen, and the prospects for the coming season were never better.

FRED LEININGER.

Douglas, Ohio, Mar. 18, 1889.

EARLY POLLEN; THE GOLDEN BEE-HIVE.

Bees are gathering pollen now to some extent; mine are all strong, or seem to be, from the way they are at work; but I have not examined any of my hives. I have only lifted the top and taken a peep in. I am the only one who has any Italians in this county, so far as I know. Some others use a frame hive; it's a patent trap, and known to the trade as the "Golden" bee-hive. I make my own hives, and they are modeled after the Simplicity. I have sold some of them to owners of the Golden bee-hive after they paid \$10.00 for a right for it.

Moltke, Tenn., March 22, 1889.

S. L. MEDLIN.

WINTERED WITHOUT A LOSS.

My bees have wintered well. I have not lost any. In examining them a few days ago I found brood in all the hives, and plenty of food to do them until they can gather new honey. They were taking in pollen quite lively on Sunday, March 24.

Clachan, Ont.

E. J. PURCELL.

WINTERING AT THE AXTELLS'.

We have taken 30 colonies of bees out of the cellar, because we had so many in the cellar we could not keep it cool enough. Those taken out have wintered finely—better than those out of doors. They were gathering pollen nicely yesterday, the 19th, which is earlier than usual by two weeks.

Roseville, Ill.

MRS. L. C. AXTELL.

WINTERED WELL; THE STRONG DRAWING FROM THE WEAK.

I took bees out of cellar yesterday, 68 hives, one dead; examined them all to-day. They are in the best condition, cleanest and strongest I ever had them. They gathered some pollen to-day. One trouble is, that a good many hives catch bees that do not belong to them, making themselves strong at the expense of others. You may remember, page 11, Jan. 1, 1889, that I wintered this time with the heavy cloth mat removed, and only a piece of burlap over the front half of the frames. It is a perfect success this time, certainly.

Grinnell, Ia., Mar. 20, 1889.

J. F. WHITMORE.

LOOKING FOR A "WHOPPER."

At this date my bees have wintered well. They seem to be stronger than they were last fall. I went into winter quarters with 29 stands; one starved; another was queenless, and I united it with another colony, so I have 27 stands yet. They have plenty of stores, and are breeding rapidly. We have had a very mild winter. I winter on the summer stands, packed with chaff. My bees commenced gathering pollen March 16th. The prospect for a "whopper" this coming season is very flattering. There is an immense crop of white clover, or will be, if the season is favorable. It is looking fine at present.

Paris, Ill., March 21, 1889.

J. P. ADAMS.

FROM ONE WHO OWNS NEARLY 600 COLONIES, AND WHO SHIPPED COMB HONEY BY THE TON AS EARLY AS 1857.

The bees seem to be wintering well so far here. Of course, it is too early in the season to make a safe prediction as to the honey crop of the coming summer. We only know that, so far, they have wintered well. But it is in the next two months that we meet with our greatest loss, especially when cold bleak winds prevail during this time. I speak somewhat from experience, this being the thirty-sixth year of my experience in bee-keeping. As early as 1857 I was shipping comb honey by the ton. This was considered a large amount of honey to be raised by one bee-keeper at that time; but now it is not uncommon to ship many times that amount. I went into winter quarters last November with over 550 colonies. They seem to be doing well. For this I feel encouraged, and hope that they will continue so to do.

We are naturally looking for and expect a good season this year, from the fact that last season was a very poor one, there being no basswood bloom in this section of country, and the yield of clover and other kinds was very light.

Exclusive of the extracted, my comb honey weighed but a little over five tons when it should have been many more. As many of the writers for the journals predict a great honey season this year I will join, and say I hope their prophecy may prove to be true. J. R. TUNNECLIFF.

Van Hornesville, N. Y.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

THE 10 lbs. of Japanese buckwheat seed I got from you last season gave me 15½ bushels, measured. I had 4 acres of the silverhull, and got only 25 bushels from it.

JOS. F. BILDERBACH.

Rockwood, Ill., March 29, 1889.

Please tell me where you put the tarred paper in the chaff hives.

MRS. A. A. SIMPSON.

Swarts, Pa., Feb. 6, 1889.

[The tarred paper on your chaff hives is put between the bottom-board and the chaff. See further particulars in our A B C of Bee Culture.]

How many bushels of chaff will it take to fill five chaff hives?

V. BUXSER.

Justus, Ohio, March 14, 1889.

[We usually calculate on about three bushels of loose chaff, not packed, to the two-story hive, and a little over one bushel for the one-story hive.]

WHITE PAINT FOR HIVES.

I prefer white paint to any other color, and I have tried several. Bro. Root, go on with your Home talk, and may God's blessings rest with you and yours.

S. C. FREDERICK.

Arcadia, Kan., Jan. 24, 1889.

[The general testimony is with you in regard to white paint for hives.]

MELISSA.

According to your description of melissa, it grows sometimes to the height of 9 feet. I planted a little last year, but it didn't attain the height of one foot in good garden soil. Perhaps mine was a small variety. The seed wasn't from you.

Chandler, Ind., Feb. 21, 1889.

A. HEINE.

IMPORTED CARNIOLANS SHOWING YELLOW BANDS.

We are expecting a fair honey crop this season, from present indications. Our Carniolans are booming; have had them three seasons, and find them equal to the best. But our imported queen from Benton shows many yellow workers.

Avon, Ind., March 18, 1889.

A. A. PARSONS.

SETTING OUT A SMALL APIARY.

I want to lay out an apiary for about 25 or 30 colonies, and set out grapevines. How near, and in what position ought I to set them? I am building a board fence on the north side of my lot. The bees will be on the south side.

J. BILLS.

Southington, Conn., Mar. 23, 1889.

[The conclusion to the A B C of Bee Culture gives you the plan which we prefer to arrange hives, and also their entrances with reference to the points of the compass. Six feet apart is the usual distance from center to center. Some prefer eight feet. The latter distance means just so much more traveling to get through with a certain amount of work.]

STIMULATING BROOD-REARING.

I wish to ask you if I may begin safely to stimulate brood-rearing by means of the "Good" candy.

Dayton, O., March 5, 1889.

T. B. REYNOLDS.

[You can stimulate brood-rearing with the Good candy; but an easier way would be to give them sugar syrup. Good candy is used, as a general thing, for the purpose of shipping bees, and for winter feeding, although it can be used for other purposes.]

NO LOSS IN CHAFF HIVES; DOUBLE-TIER WIDE FRAMES.

I keep 50 colonies of bees. I winter on your plan, and had no loss last winter nor this. I am getting tired of double-tier wide frames. Can you suggest a better arrangement for the chaff hive?

A. G. MENDENHALL.

Economy, Ind., Feb. 23, 1889.

[Use single-tier wide frames, or the T super or the section-holders described in GLEANINGS for Mar. 1st.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper and marked, "For Our Question-Box."

QUESTION 118.—a. How large an entrance do you allow each colony when they begin to work in spring? b. When do you enlarge this, and how much?

a. Four inches wide; b. I do not enlarge.

R. WILKIN.

a. About 1½ inches wide by ¼ high. b. I enlarge as soon as the colonies get strong and weather warm.

GEO. GRIMM.

It varies with strength of colony, but it is small. Vary to suit size of colony. Make full size as colony gets strong and nights warm.

A. J. COOK.

a. 3x%. b. As soon as the season becomes so warm that they seem to need more ventilation, or as soon as they begin active honey-gathering.

JAMES A. GREEN.

I allow as large an entrance as the bees will use, whether for one bee to enter at a time, or the full width of the hive, and I'm not troubled with robbers.

A. B. MASON.

Three or four inches; we enlarge the space according to the number of workers flying out. We raise the hive 2 inches in front in the summer in very hot weather.

DADANT & SON.

No set size, but it depends on the strength of the colony; usually as small as can be without danger of clogging. We enlarge it according to increasing strength of colony, and sometimes it is one inch by ten.

P. H. ELWOOD.

When in spring I contract my brood-chambers in order to stimulate breeding up, I contract the entrances to about an inch, and remove the blocks after the colonies have become strong, and more air is desirable.

CHAS. F. MUTH.

a. Just as small an entrance as possible, without retarding the bees while passing in and out. b. I follow no special rule in this, as much depends on the size of colony, weather, capacity, and style of hive, kind of honey we are working for, etc.

O. O. POPPLETON.

In all strong colonies, the full size of the entrance. Contract the entrance to weak colonies only, and in proportion to their strength at all times.

H. R. BOARDMAN.

I use the same entrance all the year round— $\frac{3}{8}$ x 12, and in summer I have to raise the cap, for top ventilation, otherwise bees cluster too much outside.

P. L. VIALLO.

I vary it according to the strength of the colony, and enlarge it as the season advances. During the best of the season I prefer them to have abundant entrance. The whole width of the front of the hive is desirable for the best stocks. L. C. ROOT.

a. If the colony is weak, I put up both triangular blocks, leaving about two inches of space, and if the weather is cold and *windy* I do the same by the strong ones, to prevent the wind from chilling the young brood. b. As the season advances and the weather gets warm.

MRS. L. HARRISON.

a. Theoretically, just as small as they can use without being crowded, but frequently it happens to be much larger. An opening two inches by one-half is likely to be large enough for a strong colony. b. When the entrance appears crowded it is enlarged perhaps once to double size, and when this becomes crowded they are allowed full width.

C. C. MILLER.

I use an entrance from $\frac{3}{8}$ to $\frac{1}{2}$ inch high, and clear across one end of the brood-chamber. I contract with L. blocks, according to strength of colonies; strength, not in relation to heat, however, but to defense against robbers. As the tendency toward robbing decreases and the colony becomes strong, I give them the whole entrance.

JAMES HEDDON.

My hives have six $\frac{3}{8}$ holes at the bottom of hive, and a hole one and one-half inches half way up, with a $\frac{3}{8}$ -inch hole cut into the side of the large hole. In the winter we leave all six of the lower holes open and the small $\frac{3}{8}$ -inch hole up the side open. When the weather gets warm, and the bees strong, then we open the $1\frac{1}{2}$ -inch hole, which is covered with a button during the winter.

E. FRANCE.

a. $\frac{3}{8}$ x $\frac{3}{8}$ for the very weakest, and from there up to 3 inches by $\frac{3}{8}$ for the strongest. b. Along as they need it, which is told by their being crowded for room to go in and out at the entrance, or when they are crowded out in hot weather. In summer I give the whole length of entrance, which is 13 inches long by $\frac{3}{8}$ high. With very large colonies, and at times of extreme heat, I sometimes raise the front of the hive an inch or more from the bottom-board.

G. M. DOOLITTLE.

Sometimes I let a strong colony have the whole doorway of $\frac{3}{8}$ x 10 inches. Others are all the way down from this to a little hole scarcely large enough for two bees to pass each other. It is not absolute time, but the weather, and the growth of the colony, that determine when to give more entrance. A safe rule is to give the working bees room to pass without delaying, and beyond that widen the door only when you see some inclination on the part of the indoor bees to remain outside. Sometimes a colony gets weak in old bees just before a big batch of brood comes out, and needs a decided closing-up for a few days, if a cold spell comes. F. E. HASTY.

I watched the answers to the above, to see if there were not somebody who had come to the same conclusion we have, that,

unless the colony becomes weakened, the entrance should be full size the year round, especially for a protected hive like the chaff hive. We once practiced contracting entrances in winter; but by keeping a careful record we proved unmistakably that colonies with the entrance wide open $\frac{3}{8}$ x 8 wintered better than where we fussed to contract them when the weather was severe. Of late years we have not tried to winter a colony so weak that it could not have full entrance the year round, and I think losses from wintering, and robbing too, would be greatly lessened if something of the kind were adopted; namely, wintering none but strong colonies, and these with entrances full width the year round.

QUESTION 119.—*a. When bees are storing surplus, do you give any ventilation besides at the entrance? b. If so, where and how much?*

No.

P. H. ELWOOD.

No.

O. O. POPPLETON.

a. Yes; raise the covers.

MRS. L. HARRISON.

No. I do not wish any other. I believe it is a damage.

A. J. COOK.

No. A good shade-board besides the entrance is ventilation enough.

A. B. MASON.

No, unless I raise the hive in front, as spoken of in No. 118.

G. M. DOOLITTLE.

I do not. I have tried it, and found more disadvantages than advantages by so doing.

JAMES HEDDON.

As stated in question 118, I use the same entrance, but raise the cap about $\frac{1}{2}$ inch for top ventilation.

P. L. VIALLO.

In very hot weather I give ventilation around the surplus arrangement, but the bees can get out only at the entrance of the hive.

GEO. GRIMM.

In tiering up my hives I ventilate at the upper entrance, as well as the lower. I secure comb honey in wide frames, in full hives, mostly.

H. R. BOARDMAN.

a. Usually. b. At the top of the hive, back end—about $\frac{1}{4}$ inch the width of the hive. I think it helps to keep down swarming, but it hinders work in the back end of super.

C. C. MILLER.

We give no ventilation except our regular entrance. We have a $1\frac{1}{2}$ -inch hole half way up the side, open in the summer, and the bees usually fly right into the hole; sometimes they catch on the side of the hive, and then run in.

E. FRANCE.

I consider no hive satisfactory without a good-sized ventilator in the bottom-board. In the warmest weather a ventilator 6 x 12 inches may be left entirely drawn. I also consider upward ventilation advantageous at times.

L. C. ROOT.

Not as a rule. If a colony seems to be suffering from the heat I raise the cover a little, the amount of ventilation given being according to circumstances. Usually, though, when I give any I give an abundance, often removing the whole cover.

JAMES A. GREEN.

When more air is necessary or desirable than bottom ventilation gives, I break loose the covers of the surplus boxes, scrape the bee-glue off, and put

them on again. Then I raise the cover about an inch, on the back part of the hive, creating thereby an air-passage over the surplus boxes.

C. F. MUTH.

a. I do. b. When the weather becomes so hot as to make bees lie out, or to endanger the melting of combs, I fold the duck-cloth cover forward 2 or 3 inches, off the frames, and leave the rear end of the board cover, that lies on it, elevated an inch or more by placing a stone under it. R. WILKIN.

When we think that our 8-inch entrance is not sufficient, i. e., when the weather is warm and the crop begun, we place a block to raise the hive from its bottom in front. Besides, as our colonies are very populous we push back the surplus box, so as to get a current of air through the hive.

DADANT & SON.

Many of my hives have no provision for ventilation of the super; but my accepted way of making a hive is to have a crack a quarter of an inch wide or more run clear around the hive between the lower story and the super. To prevent the obvious ill consequences of this arrangement the whole top is covered with what I call a shirt, so the wind must first filter through muslin before it can blow in. Does the improvement increase the surplus? Well, it's pretty clear that extra ventilation has a chance to be of direct profit only when honey comes in so rapidly that the bees find difficulty in evaporating it fast enough. I am not quite settled in mind as to how often this happens—rather seldom in my locality, I judge. E. E. HASTY.

At one time I made many experiments in regard to entrances; and once I was very strongly decided in favor of a two-inch auger-hole in the front end of the hive. The bees then could fly right in and alight directly on the combs; and I would stick to the auger-holes now were it not that it hinders brood-rearing for some distance around the hole when the weather is severe. Other experiments in this line made me feel sure that the entrance should be at the bottom of the hive. And then I was very strong for a time in favor of having a large entrance right through the middle of the bottom-board, and I would still stick to this plan were it not for the difficulty of closing the entrance when we wish. All things considered, I made a compromise by pushing the Simplicity hive so as to project over the bottom-board. This enables you to adjust the entrance to the size of your colony, and you can do it in an instant, without any blocks or loose traps lying around. When you come to ventilate, you can make the bees go in the hive by giving them an entrance nearly half the size of the whole bottom of the hive if you wish. When hiving new swarms in hot weather I think this is very much to be desired. The objection to openings for ventilation, covered by wire cloth, is that they invariably get waxed up sooner or later.

QUESTION 120.—a. *What kind of an alighting-board do you prefer during the rush of incoming laden bees?* b. *Does it pay to have a bare spot of ground near the entrance, covered with sawdust or sand nicely patted down?*

a. A board 10 or 12 inches wide. b. I guess not.

MRS. L. HARRISON.

I prefer a board from the ground to a level with the alighting-board. C. F. MUTH.

Any kind of board will do. Sawdust and sand are not as good, and too much trouble. GEO. GRIMM.

Simply have the ground kept clean and clear about the entrance. It does pay.

H. R. BOARDMAN.

a. A slanting alighting-board is best. I think short grass is cooler than bare ground or sawdust.

P. H. ELWOOD.

a. A plain board projecting three or four inches. Others may be as good. b. Probably, if easily obtained.

C. C. MILLER.

a. Inclined wooden. b. I used to have it. I have exchanged to smooth closely mown lawn. This latter looks better, and is practically about as good.

A. J. COOK.

My entrances are all within 2 inches of the ground. I keep it clean in front of the hives. In the honey season the dry sandy soil can be graded up to the entrance.

R. WILKIN.

The alighting-board should be about one foot wide, and as long as the width of the front of the hive. This is sufficient if the grass and weeds are kept down.

L. C. ROOT.

a. Our bottom-board is at least six or eight inches, or more, longer than the hive. b. We take care to cut the weeds away in front of the hives, and, of course, all around. Sand is *very* good with a sloping apron.

DADANT & SON.

Besides the detachable alighting-board I use a slanting board from the ground to the alighting-board or entrance. I find sawdust dangerous around hives, as sparks from the smoker are liable to set it on fire.

PAUL L. VIALLO.

The only alighting-board my bees have is the projection of the bottom of the hive, $3\frac{1}{2}$ inches, and the front is close to the ground. b. Perhaps it does, but I like a closely cut lawn the best, after having tried bare ground and sawdust.

A. B. MASON.

a. Simply an extension of the bottom-board, the same extending six inches in front of the hive. b. I lay a cleated board down in front to keep the grass down, then when the lawn-mower is run in front of the hive this board is taken out of the way, so that all is smooth work.

G. M. DOOLITTLE.

I strongly prefer a level or slightly slanting board of generous size, with arrangements so that bees which fall to the ground can readily crawl up in. b. I am willing to take considerable pains to secure a clean dooryard for them. As to sawdust, I find myself getting a little out of conceit with it.

E. E. HASTY.

I prefer to have the bottom-board enough longer than the hive to form an alighting-board. I think it pays to have not only the ground near the entrance, but all around the hive, bare. My apiary is covered with slack coal, ashes, sand, etc., so thickly that grass or weeds seldom struggle through.

JAMES A. GREEN.

a. Any kind of wide board, so arranged as to avoid having sharp corners or crevices to obstruct the direct passage of bees into the hive. b. I prefer a spot of bare ground to either sand or sawdust, if there is some practicable way to keep it bare. Who can tell us how to do that cheaply and easily?

O. O. POPPLETON.

We don't use any kind of alighting-board; our bees are nearly all located on pasture ground. The stock keep the grass short about the hives. I don't think I should like sand or dry dust at the entrance of hives.

E. FRANCE.

I find it makes but little difference. I believe that bees soon learn to use the most convenient and natural places to alight, but I do not believe that the laden bee prefers any other alighting-place to a vertical surface. Watch them in a box hive with a front hole part way up the front side. See what a large proportion will alight on the side of the hive. It makes no difference whether that hole is at the top or bottom. As they come to the hive laden, with their abdomen hanging down, they delight to alight upon an upright surface. They are built just right for it, you know. Yes, sir, I always keep a bare spot on the ground in front of the entrance. I use sawdust in conjunction with the hoe.

JAMES HEDDON.

Now, in view of my answer to 119 I should say the best alighting-board in the world is a clean piece of ground, right round the entrance, covered with sand or sawdust. As the sawdust is liable to catch fire from the smoker, we have of late years adopted white sand. But this white sand would not answer at all unless you keep weeds from growing in it; therefore you want to make your sand white with common salt, about once a year, and then you have it. By no manner of means can we afford to have our bees knocked down and wearing their wings into ragged strings by buzzing them against grass and weeds when they are trying to get into their hive. Some have argued that the bees will get just as much honey, even if they do have to crawl through the grass and weeds. Please remember, friends, that a bee gathers honey until his wings are worn out; and I shouldn't wonder if the life of a worker were shortened almost half by buzzing against the grass and weeds I have seen in some apiaries, while trying to get into the hive. I do not like a board, because it warps under the influence of the sun and rain. True, it can be cleated; but even then the sun will pull the nails out, and toads and spiders, and may be snakes, will get under the board. The sand and salt make a clean job of it. Some experiments have been made with cement; and in California, where they do not have any frost, I think it would answer admirably. A nice flat stone, with the bottom-board of the hive lapping on the stone, so no grass or weeds could get between the stone and the bottom-board, would do splendidly. I am not sure but that we could get pieces of sawed flaging, one foot wide and fifteen inches long, cheap enough so they would be worth all they cost. You would have an entrance and dooryard then that would last a lifetime. The cold stone might give the bees the toothache on frosty mornings, unless it be true that they never fly when the stone would be cold enough to be disagreeable. Friend Heddon's reasoning is good; but I do not like that hole in the front end of the hive, because it chills the brood-nest; and when the same hive is used for an upper story, you have an entrance where you do not want it.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

BEES IN THE CELLAR DID THE BEST.

Last fall my pa packed 59 swarms of bees for winter. He had 38 in the cellar and 21 outdoors. He lost 2 of those that he left out. Pa says it seems as if those he put in the cellar almost doubled. I have a little brother. He will be 3 years old the 10th of April. He is a dreadful little mischief. Sometimes I help pa extract honey. The name of his extractor is "Novice," and he says that means you. In the spring of 1886 he bought 20 colonies of bees of Mr. Hunt, of Bell Branch, Mich., and we commenced to take GLEANINGS again, and I guess we always shall. I like the little letters and your travels. Ma likes Our Homes, and pa likes it all. That kite I got of you is almost as good as new.

Starville, Mich.

MABEL M. COOK, age 9.

THAT BABY SISTER.

Yesterday, Feb. 22, the bees had a good cleansing flight. Papa says they have consumed more honey this winter than ever he knew them to do before, and it has been a mild winter too. Upon examining them yesterday he found a great many colonies short of stores, and two had starved. Mr. Root, the notes that you have given us in GLEANINGS of your trip to California have been very interesting. Mamma reads Our Homes to us Sunday evenings. I like to see the pictures of the beekeepers. Why not give the picture of your little boy Huber? I should like to see him, and pinch his little fat cheeks. I can remember him as I saw him a little baby. He had just learned to walk. I have a little sister, 26 months old to-day, and she weighs 42 lbs. She is just as dear a darling as can be.

GERTRUDE SEABRIGHT, age 9.

Blaine, Belmont Co., O, Feb. 23, 1889.

HOW BEES PROTECT FRUIT, AS TOLD BY A LITTLE GIRL.

My uncle has 30 swarms of bees, wintered in chaff hives, doing well. He has mulberry-trees in the yard with them, and they have berries on, and the wild canary likes the berries as well as I. Uncle has one tree among the bees, and the birds did not touch them. It was full of berries, and from the others we had to shoo the birds off. Auntie says she is going to have uncle put a hive under every tree, and that will be seven, and see if the bees will

keep them away as it has from that one. I go to school. Auntie has a little dog. His name is Fido. His wool is as white and long as that of Mary's lamb; and everywhere I go he is sure to go. I tell him the bees will sting him if he doesn't look out.

OLLIE AYERS, age 8.

Wallaceburg, Ont., Mar. 23, 1889.

Very good, friend Ollie. I think Prof. Cook can tell us something about bees frightening the birds away, and this suggestion of yours *may* prove to be of *great* value.

"OUT OF THE FRYING-PAN INTO THE FIRE."

My papa has between 50 and 75 swarms of bees. He and I hive the bees in the summer when they swarm. Last summer papa said he would give me 25 cents for every swarm I would hive without help. I got between 3 and 4 dollars. I had a veil that I put on sometimes when the bees were cross. My papa's bees are Italians and Carniolans. He gave me a swarm last summer, but it died. I like bees very well when they do not sting me. Once I got a sting on the elbow when I was up in the top of a large cherry-tree shaking some bees off from a limb of the tree. I jumped, and landed in a bunch of briar bushes.

CHARLES H. MASON, age 12.

Mechanic Falls, Me.

Why, friend Charlie, we don't believe you bettered yourself by jumping, especially since you landed among the briars. A bee-keeper must learn to "grin and bear it."

KEEPING THE BEES IN WITH SNOW.

Papa moved our house down on the road last September, and our barn too. He did not get his bees down here till the 27th of February. There was some snow on the ground. Papa put some snow in front of the hives where the bees came out. It had begun to thaw, and the bees came out of the hives after he brought them down here. Papa has 18 stands of bees. He has had but one stand of bees die this winter so far, but it did not freeze to death. It did not have enough honey. Papa had good success last summer.

BERT PRESNALL, age 13.

Marion, Ind., March 1, 1889.

But you don't tell us whether any of the bees that got out went back. We should presume that some of them, at least, must have gone back to where they used to live, and died there, because they hadn't any hive to go into.

BEES WORKING ON RED ELM; MAKING THE RIGHT KIND OF A START.

I hope you will forgive a little boy for slipping a note into papa's letter while he is out making a hot-bed. I want to tell you about our bees. I was out walking with brother Ernest (named after Mr. Ernest Root) and mamma, when I heard such a roaring and humming I stopped to listen and ask mamma what it was. She told me to look at a large red-elm tree just in front of us. It was in bloom, and I think every bee out of papa's 30 stands was on or around the tree. They were so high I could not tell what they were gathering. My little brother and I are going to try to be good men when we are grown. We both say our prayers every night, and try to mind what we are told.

WILLIE E. BARNES.

Hickman, Ky., March 14, 1889.

Bees do work on the elm, and it is quite a sight to see them too. We are glad you and

your brother have *started* right. We hope you will keep right on just so all your lives. If more of the boys in the land were making such a *good* beginning we shouldn't have so many bad men, should we, Willie?

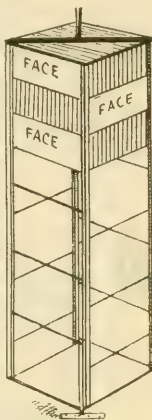
PAPA'S FRAME-HOLDER.

My papa, finding the necessity of some kind of receptacle for holding the brood-frames after removing them out of the hives in the fall, in preparing them for packing for winter, has invented what he calls a *frame-reel*, of which I send you a drawing. He has it in one corner of our honey-house. It does not take up much room. It consists of four upright posts and 16 side-bars for the frames to rest on. The reel revolves on two pivots, one on the floor and the other in the ceiling. Each tier holds 18 Simplicity brood-frames, or 144 in all.

CHAS. SEABRIGHT.

Blaine, O., Feb. 25, 1889.

Your papa's device is very ingenious, and we are sure it will do nicely. It should be made strong, so as to hold combs filled with honey. After all, we should rather prefer to store the combs away in Simplicity hives, stacked up. Then if robbers *should* get into the honey-room they can't get at the combs. Hive-bodies are convenient; and whenever there is a surplus of combs there is a surplus of bodies.



JUVENILE POETRY.

Oh! here comes the honey-bee,
With rich and prudent air;
He has worked hard all summer,
Among the flowers fair,
And filled his hive with honey
From bottom to the top.
So that, when winter comes,
Then he starveth not.
But the winter is coming,
And he must be stored
In the nice warm cellar,
Away from the cold.
But he has prepared for it
All through the summer long,
And did not sit idle
As the lazy drone,
But went to work in earnest
Among the flowers fair,
That bloomed so freshly
With fragrance rich and rare,
So that when winter comes
With its wind and snow,
That he should be prepared
In the warm cellar to go.
The bee is very useful
In odd and different ways,
So then we should be thankful
While he with us stays. KATIE M.

The poetry above is not *entirely* faultless as to measure and meter; but as it bears the stamp of originality of a little girl, we gladly give it a place.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

TOBACCO, AND ITS CLOSE CONNECTION WITH WHISKY; A LETTER FROM ANNA B. QUILLIN.

MR. ROOT:—Ever since I became acquainted with GLEANINGS I have watched with a great deal of interest your determined but somewhat novel warfare against the use of tobacco. It has always seemed strange to me that so many people would indulge in the use of it, when it is not only useless, but expensive and injurious also. Many of those who are habitual chewers make themselves positively repulsive by their carelessness and utter disregard for cleanliness, while many who smoke make themselves equally disagreeable and offensive by puffing their smoke into the faces of those who not only dislike it, but are sickened by the odor. And did you ever notice how tobacco and whisky go hand in hand, as it were? Wherever intoxicating liquors are sold, there you will always find cigars. When you see men coming out of saloons, you generally see them puffing at a pipe or cigar; and though a great many good people indulge in tobacco and do not use intoxicants, yet those who are regular drinkers are almost invariably slaves to tobacco. The old adage, "An ounce of prevention is worth a pound of cure," might well be applied to this subject, for it would certainly be much easier to avoid learning the use of tobacco than to break off from the habit after it has been acquired, for it is acquired. I have heard many men give their experience on that point, and they invariably agreed that they "had to learn to like tobacco." But when the habit is once formed, people generally become slaves to it; and if the chains are ever broken, it is not until they have had many a sharp and severe struggle for their freedom. And the same may be said of those who indulge in intoxicants. I think the great hope for the future is to teach the young people and children the injurious effects of tobacco and intoxicants on the system, and thus help them to avoid forming evil habits that are proving a curse to humanity.

There is a little rhyme which may be new to some of the readers of GLEANINGS; and though it is not very elegant poetry, it contains a great deal of truth. If I am not mistaken, it was composed by a Methodist minister; but at any rate the gentleman had an intense dislike for tobacco, as the following lines will demonstrate:

Tobacco is a filthy weed,
And from the Devil did proceed.
It spoils your breath and soils your clothes,
And makes a chimney of your nose.

I know one district-school teacher who took pains to teach those lines to every boy who went to school to her, and I believe such teaching would not be without some good results. When our bodies are

the houses we live in, should we not try to keep them pure and clean, instead of polluting and destroying them? "Know ye not that ye are the temple of God?" "Know ye not that your body is the temple of the Holy Ghost?" ANNA B. QUILLIN.

Ipava, Ill., Mar. 12, 1889.

TOBACCO FORBIDDEN TO BOYS.

The 12th of the month is a little late to be reading the last GLEANINGS, but I was reading Mrs. J. B. Ratcliffe's letter, and I wanted to add my mite on the subject. I say, abolish strong drink first, and tobacco very soon after. We have a law in our State, forbidding the sale or gift of tobacco to boys under 16 years of age, under a penalty of \$20 for each offense; but it is poorly followed, I fear. I represented our town in the last meeting of supervisors, when there was a bill of \$3.50 for tobacco for the use of the occupants of the poorhouse. The next morning I offered a resolution forbidding it to be furnished at the expense of the county. It carried by a two-thirds vote, men voting for it who were chewing and smoking when they voted. I think it is one of the causes of pauperism, therefore we should not supply it to the poor. You can enroll my name as one in the army to fight King Alcohol and Prince Tobacco. We expect at this session of the Legislature to get the privilege of county option, and then we will free our county of the curse of strong drink.

Our bees were foraging for maple sap or any thing in their line, this March 12th.

Philo, Ill.

M. L. BREWER.

AN INJURY TO HEALTH, AND A DISGUSTING HABIT.

A brother-in-law who had chewed tobacco for many years was obliged to leave it off because he came out with several cancers. He found, when he tried in earnest, he could leave it off; since then his health has greatly improved; but the cancers, as soon as cured in one place, come out in another.

Another acquaintance of mine, when cutting open a plug of tobacco, cut open a big tobacco-worm that had been mashed in with the tobacco.

A few days since I called at a store, and the proprietor had long whiskers, down which was drizzling tobacco-juice over at least one-third of his entire lower whiskers. What a sight!

Roseville, Ill.

MRS. L. C. AXTELL.

A USER OF TOBACCO FOR 30 YEARS QUIT.

I am glad to say, after over one month's experience, that, by the help of Christ, I have quit the use of tobacco in every way after I had used it for over thirty years. I can not say that I was influenced solely by GLEANINGS, but by seeing that others were quitting. I made a strong resolution, God helping me I would not only try, but I *would* quit. And I am surprised how easy it has been. I believe that *anybody* can quit who will lay it away and ask God for his grace to aid and strengthen. I will say here, that I am well convinced that, if I had never used tobacco in any form, I should have been a better man mentally, physically, and financially; and I advise everybody to quit the bad, filthy, expensive habit. Now, Mr. Root, if you think I am worthy of a smoker, if you will send me one I will pledge myself that, if ever I use tobacco in any form I will pay you the price of the smoker. I am a constant reader of GLEANINGS. We have been very much interested in your report of your travels.

T. N. STOKES.

Darlington, Ind., Feb. 6, 1889.

MYSELF AND MY NEIGHBORS.

For as I passed by, and beheld your devotions, I found an altar with this inscription, TO THE UNKNOWN GOD. Whom therefore ye ignorantly worship, him declare I unto you.—ACTS 17:23.

THE GARDEN OF THE GODS.

IT seems to me that the peculiar surroundings at Manitou strongly tempt one to think that he is in many respects in an enchanted land. The strange, grotesque rocks which I have already described, the springs that bubble forth delicious, sparkling, pungent, effervescing beverages; the sight of winter all around and a little above you, while you stand in a valley of perpetual summer, rather encourages the idea. When I started off on my walk that morning I was watching anxiously every foot of the way, to see glimpses indicating my approach to the Garden of the Gods. I do not quite like the name, for it sounds to me a little irreverent; but I can readily imagine that the discoverers of this strange

Arizona, of the work of the winds and water in wearing away rock. Some convulsion of nature during former ages had tipped the stratified rock up edgewise; then the whole had been covered with a debris of sand or soil, until the rocks standing edgewise were submerged. Now, if it were possible that some spring or other agency should cause a deposit of iron on the surface of this raised soil, so as to form a capstone of a yellow stratum, which became hard, and, after all this had taken place, the winds and floods should then wash away the soil so as to leave these rocks, that were originally turned edgewise, standing up above the soil, with the iron-ore deposit resting on their points, I can readily imagine how Monumental Park and the Garden of the Gods, should be produced by Nature's workings.

The road is well traveled along here, for excursions from Manitou go out to the Garden of the Gods almost hourly, and therefore my road was an easy and pleasant one, although it was a good deal up hill and down. In turning abruptly through the evergreen-trees, which lined the road almost



"THE HAPPY FAMILY," MONUMENTAL PARK.

locality felt as though they must have some name for the strange objects that began to meet my view. One of the first things that attracted my attention was some queer rocks sticking out of the ground, looking more or less like monuments of some rude sort, or tombstones of some former age. Pretty soon, on the summit of a little knoll among the bushes, I caught a glimpse of some of these queer monuments actually capped. See cut above.

As I came around a curve in the road, so as to get a better view, I could hardly believe my eyes when I saw three of these pedestals united by a cap that formed a bridge from one to the other, as seen above. The three seemed to be supporting on their apex this piece of rock as if it were a log, or may be a human body, suspended aloft. I noticed at once that this log, and, in fact, all of the cappings, were of a different-colored stone, indicating that they were harder; and then I remembered my studies in

its whole length, I came suddenly upon what is called the Balanced Rock, as seen on next page.

As one lifts his eyes and gazes upon this ponderous stone, as big as a small meeting-house, he involuntarily starts back for fear it will tip over on him; and it took me quite a little time to gain assurance enough to walk boldly up and take hold of the rock to see if I could not tip it out of its place. Perhaps I should remind our readers that these pictures are true to life, for they were all made from photographs, by the new Ives process. As one sees the fleecy clouds float along the sky above the tree-tops, and above this rock, he is almost sure to imagine that the rock is swaying one way and the other, ready to roll on him and crush him to atoms. In fact, those who are familiar with the objects here have a sly trick of telling people, especially ladies, that this great rock sways to and fro, as the wind blows light or strong. After they have made many exclamations

of surprise, somebody begins to smile, and then there is a big laugh all round, to think how easily they have been humbugged. I hardly need tell our readers that all the lifting I could do did not disturb the great stone from its poise where it has rested for so many ages. The stones and rocks in this vicinity are much like those in the region of Mammoth Cave. They are more or less soluble in water; and as the rain trickles down it dissolves enough of them to give the water a plain color, so a great many of the streams are red, or yellow, on account of the chemicals they have dissolved from the rocks. This red, or yellow color, I believe, is mostly owing to the salts of iron. The Indian name for yellow is "ute," therefore we have Ute Canyon, Ute Mountain, and Ute Springs. The Ute Springs have enough

springs and ship it by the carload to distant places, where there is demand for it. Before we go on, let us look back and say good-by to our friend the Balanced Rock. The monuments and pillars of the Garden of the Gods are scattered over perhaps a mile or two of ground. Some visitors have been disappointed because nature did not arrange them all in a group so they could be seen without traveling. I confess, however, that I rather like the idea of having them burst upon my view as I climbed hills and descended into valleys, one at a time.

The next thing was the Needle Rocks and the adjacent spires, the names of which I have forgotten—see next page.

The three rocks called the Needles are seen on the left. They are thin flat stones that stand straight up, perhaps a hundred feet or more high. Some think there is nothing to suggest needles. In fact, you might think them one, instead of three rocks; but when you get along to just the right point, as you look at them edgewise toward the sky you will see that they are entirely separated, clear to the ground, and all you notice is three thin spires, so frail you are tempted to think they must be sheet iron or they would be broken off by the wind. These three once composed a solid rock, sticking up straight toward the sky. As this rock, however, was composed of strata of different degrees of hardness, the wind and rain have dissolved out the soft portions, leaving the needles, or leaves, rather. Right back of the horse and buggy you will notice another strange pile of rocks, one of them reaching like a single tall spire away up into the sky, almost. You can get an idea of its height from the size of the horse and buggy. At the left of this square block, not unlike the ruins of some building, is another of these queer bridges. In this case, one of the spires has evidently broken off and fallen on its neighbor. The rocks a little further on, at the right hand of the picture, are full of openings not unlike the needles. In our next picture we have a view of them from the other side. The horse and buggy again give you something of an idea of their height.

And now we stand right in the center of the sacred ground. I say "sacred," because it seems to me that almost any child of humanity must feel like uncovering his head as he looks in awe and wonder at these strange and curious structures towering up like mountains. The picture gives you a faint glimpse of the roadways that have been made here and there in the sand. As you push your foot into the reddish-yellow soil, or, rather, gravel, you are impressed with the idea that these rocks, at some remote time, must have been very much higher than they are now, and that the ruin of their former greatness is what makes this rocky gravel that covers the whole landscape all round about. A little distance away is a hotel that is kept up in summer time. At the time of my visit they did not receive visitors. The lady who had the place in charge kindly answered my questions, however, pointed out the places of interest, and supplied me with the photo-



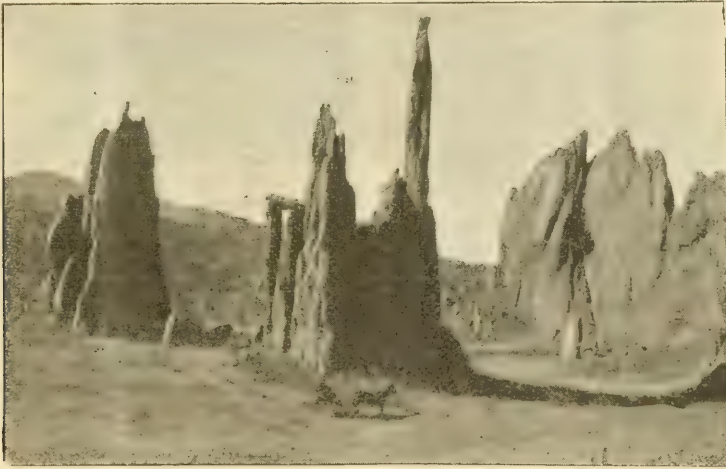
THE BALANCED ROCK, IN THE GARDEN OF THE GODS.

iron in them to give a slightly sour taste, not unlike weak lemonade; and the presence of the carbonic acid, to make the water sparkle, and give it the delicious snap, makes one almost ready to acknowledge, as the Indians used to have it, that the Great Spirit had given mankind not only a delicious beverage, bubbling up from the bowels of the earth, but a beverage that heals diseases while it refreshes. Now, Dr. Mason intimates, somewhere in this issue, that I am rather averse to any sort of healings that come out of a bottle. I want to tell him that I begin to have faith just at present in the virtues of Manitou spring water, even though we do have to bottle it up at the

graphs I have given you on these pages. Most of the rocks have been named; and people imagine that these rocks bear likenesses to different animals. As the rocks and cliffs are all variegated with different colors, mostly red and yellow, various landscapes and pictures are pointed out. These,

er, horses, passengers on top and inside, and luggage behind."

I smiled somewhat as I turned back, and now for the first time allowed my imagination to see in the coloring of the rocks what she had described. I have from childhood had a very vivid imagination, and can re-



NEEDLE ROCKS, GARDEN OF THE GODS.

however, draw so strongly on the imagination that few people can see them until they are "educated up to it," if I may use the term; and various maps and paintings adorn the reception-room of this hotel, giving an exaggerated view of the paintings to be seen on the rocks. For instance: Said the lady,—

member as long as forty years ago of seeing pictures in the clouds, and, in my mind's eye, building up a romance that so absorbed me it was like a fairy-tale or a story from the Arabian Nights; and when I found here at the Garden of the Gods that they were making a science, almost, of this matter of seeing wonderful paintings where the ordi-



VIEW OF THE INTERIOR OF THE GARDEN OF THE GODS.

"Can you see that stage-coach just on the summit of yonder range of cliffs?"

I was obliged to confess that I could not see any stage-coach at all—nothing like it.

"Well, now, turn around and look at the picture up there on the wall. You see there the old-fashioned stage-coach with its driv-

nary individual saw nothing at all, it made me smile again. For the first time since my long walk in the morning I began to feel that it was dinner-time; but my good friend told me there was no remedy. They were not prepared to give anybody a dinner, so I had the prospect of two miles and a half be-

fore dinner. I asked my friend if I could not shorten the distance by going crosslots. She said she believed the traveled road was considered the quickest and easiest in the end. I, however, though tired and hungry, rather preferred a new path. My wife has scolded me over and over again because I *always* insist on going home by some other route; and even though former experience has resulted in my getting lost, finding bridges gone, getting the buggy muddy, and things of that sort, she says experience *with me* does not seem to amount to any thing. I am up to the same old trick whenever I get five miles or more from home. I saw an opening through the rocky cliffs, right ahead of that horse and buggy, and into it I pushed, with my photographs in my hand. Pretty soon I had more climbing over the rocks than I had counted on; but I consoled myself by thinking it must be pretty soon down hill instead of up. Yes, it was down hill, but such a down hill as I never saw before. I pushed ahead until I began to fear I should fall into a chasm or be killed on the points of the jagged rocks below me; and then my imagination began picturing GLEANINGS dressed in crape, and all its readers saddened by the intelligence that its editor had been found crushed to death at the bottom of a precipice. So I got back to the beaten road, and, as soon as I could, made for the railway track.

What a boon is a railway track, even to a footsore and weary traveler! I had been saying to myself, that, if I just got on the railway track there would be no more up hill and down hill. But I soon had experience of this queer optical illusion that I have mentioned before, as the effect of the mountains; namely, you are sure you are going *down hill* when in reality you are on the up grade. I looked ahead on the track, and rejoiced at the prospect of seeing a place where it was so much down hill that I could easily run clear down to the town; but when I got there I could hardly believe my senses. It seemed to me as if some evil sprite from the Garden of the Gods were pulling and tugging at my coat-tails, and trying to pull me up hill backward. It seemed so unreal, that I turned square round and walked the other way. Would you believe it?—it was a great deal easier walking up hill (at least my senses said it was up hill) than to go down hill toward the town! I looked around for a stream of water. Sure enough! I felt like the woman who said, "There, it is just as I expected, and I *always* thought it would be." That contrary stream of water was running up hill, just as plain as the nose on your face. It seemed to be laughing and giggling to think I was such a "greeny." By and by, however, I reached my hotel; and my good friend who presides at the table had saved out an extra nice dinner for me. It was then only just half-past twelve o'clock.

Does some one wonder what all this story has to do with the text at the head of our talk to-day? Well, friends, it is this: Great multitudes are thronging Manitou, especially during the hot weather of summer. If they come here they put up at expensive

hotels, and then pay great prices for liversies to visit these things I have told you about. They do this to worship God through his works, some of them say. Now, they come here for enjoyment and recreation, and in order to get the very greatest amount of enjoyment out of a certain sum of money or for a certain number of days or weeks, and they resort to various artifices to enhance the attraction the place already possesses. Expensive hotels furnish costly viands; and the advertisements of their wonderful springs unblushingly recommend Manitou spring-water, combined with intoxicating liquors; and a good many people when they go out to enjoy nature must have a bottle of intoxicants along with them. I have sometimes wondered *why* one who loved whisky could not get intoxicated just as well somewhere out of sight as to go to a picnic or excursion, or on a trip to some noted watering-place. Many must have a cigar when they are looking at the mountains, waterfalls, or nature's caverns. Stumps of cigars are scattered quite freely all through the Garden of the Gods. I am told, also, that the livery-stables do an immense business on God's holy day. Now, then, friends, with the above thought in mind let us read our text:

As I passed by I beheld an altar with this inscription: TO THE UNKNOWN GOD. Whom therefore ye ignorantly worship, him declare I unto you.

Now, let me tell you as Paul told the people of Athens in olden time, "Him therefore whom ye ignorantly worship, declare I unto you." I doubt whether any tourist ever had more real enjoyment in Manitou than I found. But I found it a little unexpectedly. It commenced in God's holy temple, among Christian people, in the house of worship. You have heard my simple story, which I have told as honestly and truthfully as I knew how. Now, did any one, when under the influence of the narcotic fumes of tobacco, or through the intoxication of strong drink, or even by the expenditure of vast sums of money, ever find the happiness that I have found? Did any Sabbath-breaker ever enjoy himself so honestly and thoroughly as I have done during this Monday forenoon I have told you about? Perhaps it *is* true that we are all seeking enjoyment, myself among the rest; but has not Paul got it about right when he says, "Whom therefore ye ignorantly worship, him declare I unto you"? The Bible tells us, "*Great peace have they that love thy law.*" My testimony is, that it is true, every word of it, and there is no peace in the whole wide universe to be compared with that which comes to the faithful, honest, earnest follower of Christ Jesus.

A VISIT TO BEE-CELLARS IN NORTHERN OHIO.

ERNEST OFF ON A RAMBLE—CONTINUED.

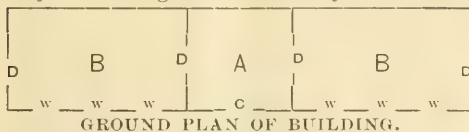
THE topic of our conversation gradually merged into the wintering question. Of course, I asked Mr. Boardman a great many questions about the repository. To talk more understandingly we went out to look it over. Having

taken along my camera, I was prepared to take some views, and I herewith present you an outside view of the building, looking from the southeast.



BOARDMAN'S HOME WINTER-REPOSITORY.

This is double-walled, 50 x 12 feet, one story, with walls 14 inches thick. It is divided into two compartments, each of which is connected with an entryway 10x10 in the center of the building; consequently to enter the building we enter by a door at C in the diagram, not shown in cut. If desirable the door can be closed after us, and we can then enter the doors from the small entryway. The diagram below is my recollection



of the plan of the building. A is the entryway; B B the compartments; C the doorway to the entry; and D D, etc., are doors to the compartments B B, from each end of the building. W, W, W, etc., are windows, hinged in the middle in such a way that the window can be revolved to a horizontal plane, so as to allow the bees to escape. As we approached the structure, I said, "I notice that the door is open."

"It has been such an open winter that I have been obliged to lower the temperature by letting in the outside air. Besides, there are more colonies in the repository than I should prefer to have for such an open winter as the present one."

"How many colonies have you in there now?"

"I have 70 in one compartment and 100 in the other. In continuous cold weather the 100 would have been about right. But, I find that from 75 to 80 colonies in each compartment average best, all things considered. During the past winter, the compartment having the 70 did better than the one having the 100. During a severe winter the results might have been reversed."

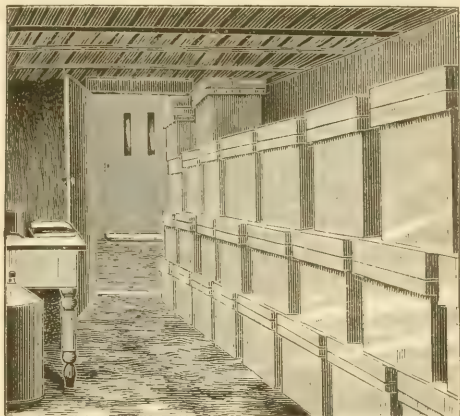
"I suppose, it will not be possible to get a photographic view inside; that is, it will not be advisable to let in sufficient light to enable me to take a picture."

"Oh, yes! I think there will be no trouble;" and so saying he opened the end door at D; and not only that, he opened the three windows so that it was as light as an ordinary room.

"But, aren't you afraid that this light is going to disturb your bees?"

"For the length of time you require, it will do no harm."

Stationing myself at the end door D, I poised the camera and took the view shown below.



AN INSIDE VIEW OF BOARDMAN'S WINTER REPOSITORY, SHOWING FRONT ROW OF HIVES.

As Mr. Boardman has already explained in one of his articles, the bottom-boards are left on their permanent stands, and the hives, as you will notice by the engraving, are piled up in such a way that the bottom of one hive comes directly over the opening between the two below. Instead of giving full-width entrance, as most bee keepers do who winter in repositories, he gives them the benefit of a large portion of the bottom of the hive. To the stronger colonies he gives more bottom space; to the weaker he gives less. On the average there is an opening at the bottom of each hive, 4 inches wide, and the full length or width of the hive. He does not then give them the full bottom, as I had formerly supposed, and as perhaps some of the rest of the readers likewise understood.

You will notice that friend Boardman dispenses with all stringers, shelving, or any other support to hold the colonies in the repository. They are simply piled up about 4 inches apart, one upon the other, break-joint fashion.

"Now, then, friend Boardman, Mr. Newman said he did not see how you could carry hives about without bottom-boards, and yet not have the bees dropping out and flying out to make the job any thing but pleasant; and, what is more, I do not see how you do it myself."

"Why, easy enough," said my friend. Going to one of the hives (they are cleated clear around at the top, you will notice, the cover resting telescopic fashion on this cleat) he grasped its diagonally opposite corners. Leaning backward a little he let the edge of the hive bear against his person, carried the hive to the other end of the repository, set it down, took it up and put it back. He did likewise with a number of other colonies. Each one he held up, turning it up so that I could see for myself the condition of the bees, and how they apparently regarded such kind of handling.

While it looked real easy I could not be content until I tried it too.

"To prevent the bees flying out when about to remove them to their winter quarters, I am particular," he said "not to jar the hive unnecessarily, and then I prefer to have the weather just cool enough at the time so that the bees cluster a little closer than usual.

"You see," he continued, "I letter each row in the apiary, and number each individual stand. Now, when I get ready to carry the bees out I take the first hive I come to, which, in this case, proves to be F 18. Of course, I know where the F row is; and 18 I know to be somewhere about the middle of the row; and with the hive in this fashion" (holding it in the manner I have before explained) "I take a bee-line to the bottom-board having the same marking as the hive."

"But," I said, "do you think it makes any great difference as to where the colonies are put?"

"Not much, but it does some; and if I can deposit each colony where it was last fall, just as easily as not, I very much prefer to do so rather than to set them out haphazard. There is then no confusion among the bees when they take their first flight; for some old bees will be sure to know where their old stand used to be."

"I want to know what sort of a cover you put over the frames in winter."

"All the bees have is the regular hive-cover, and this they usually glue down tight; that is, I put the bees into the repository just as I find them on their summer stands, after I have satisfied myself as to their strength and amount of stores."

Now, perhaps some of our readers will begin to wonder whether those bees, during all this time when the repository was lighted as light as any ordinary room, did not become more or less disturbed, and fly out. I expected to see them fly out a great deal more than they did; but only here and there a bee would start out from its hive, and strike for outdoors. Then I said to Mr. Boardman, "You would not like to leave this compartment lighted up like this all day would you?"

"No, sir; but for a short time it does no particular harm. The few bees that fly out are old ones, rather feeble, and are not of much use to the colony. My colonies have been rearing brood quite heavily, and there is a large force of younger bees to take their place."

Glancing down to the floor (concrete cement) I noticed there were a good many dead bees. In some places, perhaps they were an inch or so deep.

"Now, it seems to me you have got a good many more dead bees as the result of your indoor wintering than we have from our chaff hives, on their summer stands."

"Yes; but," said he, "I think you will find that the bees fly out from the chaff hives in the same way. These, never returning, are lost sight of, and of course do not figure very largely in the eyes of the bee-keeper, on the death-list."

While I admitted this, it did seem to me

there were more, perhaps, than we usually lose in that way on summer stands. I say "seem," because I am not sure about this.

The dinner-hour approaching, Mr. Boardman closed up the windows, darkened them, and closed all openings except the door to the entryway A, shown in the diagram above. As we stood before the building I said to Mr. Boardman, "It is not yet quite clear in my mind whether you open that door to give ventilation or to lower the temperature, or to do both."

"Bottom ventilation to the *hive* is all that I regard as important. I open the door simply to lower the temperature of the repository."

"But," I said, "don't you have a sub-earth ventilator of some kind to the building?"

"I do not see what need I have of one. As I only want to lower the temperature, I can do it by a door or window a little better, perhaps, than to let the air become warmed under ground a little before entering the compartment."

As we were entering the house, I told Mr. Boardman that I should like to take the noon train.

"Oh, no!" said my host. "You had better take the evening train."

Having enjoyed my visit so far, it did not take very much persuasion on his part and that of his good wife to induce me to remain over a little longer. Besides, as he had promised that he would take me out to his out-apiaries I did not feel like resisting very hard. Accordingly, after dinner we went out to the barn, where Mr. Boardman had three horses, one of them being a family horse, and the other two devoted exclusively to the bees, in going to and from the out-apiaries. Very soon we were on our way, on a brisk trot, to one of his east apiaries. After going about a mile and a half we came to a piece of land belonging to Mr. Boardman. An old schoolhouse on this plot of ground had been converted into a winter repository. Like the one at home, it was an up-ground structure. The walls were 14 inches thick, and frost-proof. This building had only one compartment, which communicated with an entryway, and the latter to the outside. My friend then brought something like a dozen colonies, selected at random, out to the light, for my inspection. They were all in most excellent condition, and the weak ones seemed to be doing about as well as the strong ones. As before, I noticed dead bees on the floor, but not to the extent that they seemed to be in the winter repository at home. After closing the building we started for an out-apiary some two or three miles further east. Of course, we talked all the way. I asked him if he preferred up-ground repositories rather than a good cellar.

"I prefer them simply as a matter of convenience," he said, "in carrying bees in and out. I do not know that the bees will winter any better in one than in the other. We are now going to one of my bee-cellars under a farmhouse, where I think you will find the bees wintering as well as in either of the other repositories."

In a short time we arrived at the place in question.

"This cellar," said Mr. Boardman, as he opened the door, "is one that I partitioned off."

As before, Mr. Boardman and I examined the colonies at random, and found them to be in good condition.

"Now," said he, "here is one colony that I put in by way of experiment. I do not know how they will winter. It was very weak, and I thought I would put it in just to see how they would winter."

Turning the hive up we could detect no signs of life. He set the hive down again and lifted up the cover, and, lo! every thing was as still as death. When I came to examine the size of the colony I was not very much surprised myself. There could not have been very many more than 200 bees, even at the outside, in the cluster; but the evidence seemed to point to the fact that they had only just died.

"Ordinarily," said my friend, "we unite such weak ones; but as a general thing we can winter weak colonies—that is, if not too weak—as well as we can strong ones." After putting the hive back in its place, he continued, "You will notice the cellar is very dry. Some bee-keepers claim that they could winter bees in a cellar 'reeking with dampness,' if only the food were right. I am not so particular about the food, but I am particular about a dry warm place."

All of Mr. Boardman's bees, as he subsequently told me, were wintered on whatever stores they happened to have in their hives. If the food is well ripened, the colony not too weak, and the cellar dry and warm, he does not worry very much over probabilities. While he can and has wintered bees on honey-dew he prefers the nectar of the flowers. As we stepped out of the repository Mr. Boardman said, "Here at this apiary I employed an inexperienced boy. I should have had more money in my pocket had I paid him the wages I did and had him stay at home. He made enough muss and trouble to more than offset all the good he did."

Mr. Boardman prefers a man grown—one with sufficient maturity of judgment to do what he is told to do.

To be Continued.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

THE DOVETAILED HIVE

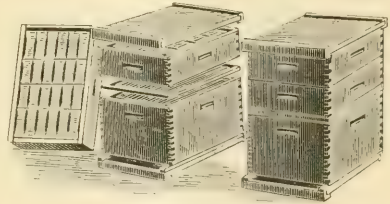
A GOOD many suggestions concerning the new hive have come in. One or two of the friends think that plain ordinary box joints will answer all practical purposes, and that the dovetailed corner is just so much more useless expense. Having perfected special machinery, the item of dovetailing is a very small one indeed in the construction of the hive, and the attendant advantages are too great to be ignored. To test the strength of a dovetailed corner we drove one hive together *without paint or nails*, and found it was nearly as rigid as a *Simplicity nailed*. Again, we drove together the dovetailed

body, having previously dipped the dovetailed edges into some thin paint. The hive was then allowed to become thoroughly dry. To test its strength I then put my whole weight, 150 pounds, upon it in such a way that the pressure was exerted on the diagonally opposite corners. I then pounced it upon the floor, balancing myself milk-stool fashion. I presume that something over 200 pounds upon the opposite corners was exerted before I could hear any thing crack. Mind you, all this was *without a single nail*. But on account of the daubiness of paint, our man prefers to nail them together and then cross-nail. It is impossible to cross-nail an ordinary box corner—that is, where one board simply laps across another. A cross-nail joint is very much superior in point of strength and durability to the plain box corner.

There are some people who will be sure to get a hive together wrong if there is a possibility of getting it so. For instance, with a box or lap joint they will lap the end across the end of the side, or vice versa, when the opposite is intended. Carelessness in this respect results in the wrong inside dimensions of the hive as a matter of course. With the Simplicity or with the dovetailed corner, such a thing is impossible. You may say that a man of ordinary common sense ought not to do such a thing. Some very foolish blunders are made, as we know from experience, by some of our customers.

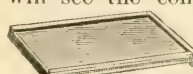
If there is any warp in a side or end, the dovetail, when driven together, will take it out, and prevent any further trouble from that source. No, sir, the dovetailed corner is considerably better than a box joint.

As announced in our last issue, I here-with present the modified engraving of the Dovetailed hive as we now make it.



THE DOVETAILED HIVE.

The principal change noticeable on the hive will be the changing of the bee-space to the top of the brood-frames, instead of at the bottom as before announced. You will notice what a good-sized entrance we allow. By the accompanying wood-engraving you will see the construction of the bottom-board.



BOTTOM BOARD.

It is simply a cover-board, hardly good enough to be used for a cover, cleated at both ends like a cover, with a quarter-inch strip nailed on each of its two sides. One of the end cleats is leveled down, so to speak, to allow an entrance-way. This bottom-board can be used for a cover, but the cover can not be used very well as a bottom-board. In general, the construction of the hive is now such that, in whatever combination it may be made, a

bee-space will always be between each separate compartment; and if desired, the honey-board may be omitted, although I should never advise it.

Some of the good friends think we are making a mistake to leave out the tin rabbits. The new hive is intended for comb honey and not for queen-rearing. Where the frames are to be handled often, I would recommend using the Simplicity hive with the tin rabbits.

SECTION-HOLDERS.

There has been a large demand in the last few days for the Dovetailed hive; and with scarcely an exception the section-holder arrangement for surplus is chosen. For the new hive I feel quite certain that it is the better arrangement, although personal experience this summer may modify my views.

Right here I will make an extract from a letter of our friend H. L. Jeffrey:

Those frames for the sections will do two things for the boxes; first, keep them clean, and save, in time of cleaning, more than the cost of the frames. Second, by keeping the outer end of the sections of a higher temperature than with only one thickness of wood, and getting those sections filled out more like the center ones, flush with the edge of the section, the same result will be found by making your crates with a division-board inside, with an $\frac{1}{8}$ -inch lag strip to give the section more space, and keep up the evenness of the heat. That is what 10 years' use of double sides has shown to be true. Mr. Alban Ferriss has used those topless section frames for years, and so have a score of others that I know of. From what I have used of a similar fixture, and seen by a score of others use, I am sure you are putting out the best thing that you have had yet, although it is a new combination to the public, of old things.

H. L. JEFFREY.

Marble Dale, Ct.

You will notice that Mr. Jeffrey says that Mr. Ferriss and a score of others have used these frames and like them; and he, Mr. Jeffrey, thinks we are putting out the best thing that we have ever before advertised.

I also make an extract from our friend Mr. Stachelhausen, who, it will be remembered, produced 11,000 pounds of comb honey last year, when a great many others failed. He says:

The super is ingeniously constructed, and the section-holder seems to me to be a noble arrangement.

Our section-holder super-shells are just $4\frac{1}{2}$ inches deep and $18\frac{1}{2}$ inches long, inside measure, and this is too deep and too long to accommodate $4\frac{1}{2}$ sections; but by a little calculation you will see that it is just right for a T super to accommodate sections $4\frac{1}{2}$ square, $1\frac{1}{8}$ inches wide, which we regularly keep in stock. I mention this fact, because some complain that the $4\frac{1}{2}$ sections are too small; and while I would not advocate changing to the larger size of section, yet if the purchaser adopts the section-holder arrangement he can easily convert it into a T super by using the $4\frac{1}{2}$ sections, as stated; but if he orders the T-super arrangement he can not change it to any thing else.

For those who desire to use the T super and $4\frac{1}{2}$ sections, we make the ends thicker and the holder-shell $4\frac{1}{2}$ inches deep.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, APR. 15, 1889.

Thou shalt love the Lord thy God with all thy heart, and with all thy soul, and with all thy mind, and with all thy strength: this is the first commandment.—MARK 12:30.

CAPTAIN HETHERINGTON'S ARMY LIFE.

In another column will be found an exceedingly interesting account of the army life of that bee-keeper and soldier, Captain J. E. Hetherington. As one who manages successfully some 3000 colonies, we extend to him our hearty congratulations; and as a soldier, we feel sure that the whole bee-keeping fraternity may well feel proud of him, whether North or South.

THE VIRGIN-QUEEN TRAFFIC.

The following, from the *Review* for March 10th, is so exactly in line with our opinion and experience, that we think best to place it before our readers:

Mr. Jones favors the traffic in virgin queens. That they can be furnished very cheaply, there is no question; but that they are difficult to introduce, we know from experience. A newly hatched queen is easily introduced. As the hours go by, the probabilities of acceptance are lessened. With us, the percentage of loss has been great when the queens were three or four days old. Then there is the risk of loss in mating; and, unless the locality of the purchaser can furnish excellent drones, the queens will find undesirable mates; and as prepotency is on the side of the male, there will be little "value received."

IS THERE A BETTER BAKING POTATO THAN THE SNOWFLAKE?

You may remember that, on page 191, I asked for samples of the best baking potatoes known. Well, I received from George Ebell, of Baker City, Oregon, four Early Rose potatoes, by express. The four potatoes weighed 8 pounds. They were very good, but hardly equal in quality to the Snowflake. He writes as follows:

I raised them on friend Terry's plan. I have several thousand pounds as large as the sample sent. I held 50 pounds in one arm.

Baker City, Oregon, March 23, 1889.

GEORGE EBELL.

Peter Henderson's Early Puritan comes so near the Snowflake that it might almost be said to equal it; and as it is said to be as early as the earliest, and as productive as any of them, we are inclined to consider it an acquisition. We are now planting it, largely with a view of furnishing seed to our subscribers next year.

THE EDITORIAL "I" IN GLEANINGS.

I SUPPOSE that most of our readers are aware that the coarse print on our pages is all written either by Ernest or by A. I. Root. Well, now, although Ernest and A. I. agree pretty nearly on most points, it begins to be apparent that our opinions do not always coincide exactly. The same is true in regard to the A B C book. A large part of the last edition was written by Ernest himself; and if you should find that I express an opinion in one place and Ernest gives a conflicting opinion somewhere else, please do not quote it as an illustration of A. I. Root's inconsistency. In many things, especially those pertaining to the bees, Ernest has had

more experience at the present time than I have had; and, in fact, when some one comes to me for an opinion, I very often turn him over to Ernest because I have more confidence in his decision than I should have in my own. The matter of gardening and raising crops is, however, more especially my province.

CAPTAIN HETHERINGTON'S LOSS.

JUST as we go to press, the following sad intelligence comes to hand:

The readers of GLEANINGS will deeply sympathize with Capt. Hetherington and wife in the loss of their youngest son, John Edwin, who died April 3d, aged 4 years and 3 months. Although so young, many had observed that his remarkable intellectual development, together with an unusual degree of self-reliance and energy, gave promise of a life of great usefulness. P. H. ELWOOD.

Starkville, N. Y., April 9, 1889.

We extend our sincere sympathy to the captain and his wife.

ORANGE-BLOSSOM HONEY; THE FIRST EXTRACTED HONEY OF THE SEASON.

We are in receipt of a sample from Florida, with the following letter:

Mr. Root: We extracted our first honey March 21, taking out five gallons of mixed honey, fair and good. Monday, April 1, we extracted again, and got 30 gallons of as fine orange-blossom honey as could be desired, a sample of which I send you. We will extract again next Monday, and expect to get 30 gallons more then, of the same honey, and that will close orange-blossom for this year. We have 30 colonies. If we have no disappointment, the season will last 3 months. Our bees are on the St. John's River. JOHN CRAYCRAFT.

Altouna, Fla., Apr. 3, 1889.

I am happy to say that the sample of orange-blossom honey sent us is perfectly delicious, and ought to bring as good a price as any of our clover or basswood. I think I should place it at the head. The flavor is quite similar to that furnished by the Baldensperger Bros., of Jaffa, Syria, noticed in these pages some two or three years ago. What will you take for a barrel of it?

TO WHOM IT MAY CONCERN.

We have of late been receiving so many communications from people who have invested money in a patent-right pruner, claiming to have purchased the territory of our agent or agents, that we wish it distinctly understood that we have no agents, and never did have, for selling rights for any patent. Whoever claims to be our agent, or to be authorized by us to sell rights for any pruner, is a humbug and a swindler, and we hope that all good men will assist in putting down this fraud. In some cases poor widows have scraped up their scanty earnings to pay for a county right, only to be informed, when they write to us, that their money is worse than thrown away.

THE ILLUSTRATED HOME JOURNAL.

THE above is the title of a monthly periodical published by T. G. Newman & Son, editors and proprietors of the *American Bee Journal*. This new journal was formerly known as the *Chicago Illustrated Journal*. After three volumes were issued, it was voluntarily suspended for a time. An auspicious time having arrived, the editors decided to renew its publication, changing its name slightly as above. It is printed on nice calendered paper, and contains 36 pages, including a tinted cover. It is well illustrated, and the initial article is entitled "One Hundred Years a Nation," by the editor. Mr. Newman is a man acquainted with men and with the times, and the article is comprehensive and complete. We wish the publishers every success. Those of our readers who would like to see

how good an illustrated home journal can be had for \$1.50 per annum can obtain a sample copy by addressing T. G. Newman & Son, 923 West Madison St., Chicago, Ill.

LOOK OUT FOR HIM.

J. H. BREWER, physician and surgeon, Jackson, Neb., wrote us as follows, Oct. 11, 1888:

Please send me one copy of your A B C of Bee Culture and one of your best bee-smokers, by express, C. O. D. J. H. BREWER.

Jackson, Neb., Oct. 11, 1888.

Judging that the want of the goods was probably more than the worth of them, we sent them right along with above instructions. When notified they were not taken from the office, we wrote the doctor; and as he did not reply we wrote again, telling him we should be \$1.05 out of pocket if he did not take the things from the express office according to promise, the above amount being the express charges both ways. We even wrote the third time, telling him we had his plain order in black and white, with his signature at the bottom; also telling him that we should feel it our duty to caution others among the bee-fraternity against trusting him in a similar way, if he did not respond. We also took pains to find out that he was in his usual good health, and abundantly able to answer letters, even if he could not raise the small sum of \$1.05. As he makes no reply, we publish him as above.

A BOOK ON BUCKWHEAT WANTED.

SINCE the advent of the new Japanese buckwheat, the industry has assumed such proportions that it is quite important that we have the fullest information in regard to preparing the ground, sowing the seed, use of fertilizers, harvesting, cleaning, and, in short, every thing connected with the raising of buckwheat. The matter of getting another crop in, after something else has come off, is also of much moment. My experience with the articles on sweet potatoes has opened my eyes to the fact that the readers of GLEANINGS are able to furnish a valuable treatise on almost any new industry. Now, friends, please tell us what you know about buckwheat, and we will have a "buckwheat issue" some time before it is time to sow the seed. I will pay for your communications what I think I can afford to, as I did with the papers on sweet potatoes. We want all the valuable facts and hints we can get. If some of them do not occupy more than ten lines, all right. Let us have them, and we will pay you something for your trouble. Now, please remember that we want facts from actual experience, and experiment rather than flowery essays. If some one of our readers has raised buckwheat to the extent of a thousand bushels or more in a season, we should like to have a pretty comprehensive article from him; but as there will necessarily be much repetition, most of you had better make yourselves as brief and comprehensive as you can. We want the facts boiled down. Where one raises only a little patch, the question comes up about harvesting. He can not afford to get a thrashing-machine. Shall he then load it on wagons and draw it to some machine already set up? or shall he thrash it with a flail? Has anybody yet raised two crops in one season? and does it yield grain in any locality when sown early in the spring, as soon as frost is out of the way? How about the use of chemical fertilizers? Shall we sow it broadcast, or with a seed-drill, etc.?

SPECIAL NOTICES.

HENDERSON'S EARLY PURITAN POTATO.

We have just purchased a barrel of these to plant, and we will furnish eyes, by mail, at the following prices to those who want them: 10 eyes, 15 cts.; 100, 75 cts.

EARLY OHIO POTATOES FOR PLANTING, AT A BARGAIN.

While our stock lasts we will furnish Early Ohio potatoes at the same prices as Beauty of Hebron and Burbank were offered last month; namely, 50 cents per bushel, or \$1.25 for a barrel of three bushels.

EXCELSIOR FLAT DUTCH CABBAGE.

When we started out with our seed catalogue, you know we decided to have only a few of each kind of vegetable. I think we had at first four kinds of cabbage. Our list has now, however, run up to seven, and it does not seem as if we could drop any of them. Worse still, there are several complaints that we have not in our list a late flat Dutch cabbage; we have therefore added Excelsior Flat Dutch. Five cents per packet; 15 cts. per ounce, or \$2.00 per pound.

FIGWORT, OR SIMPSON HONEY-PLANT ROOTS.

In consequence of my absence in California last season, our rich market-gardening ground was not plowed in the fall, and, as a result, great numbers of figwort plants came up and became strong enough to winter over. If orders are sent in at once we will furnish these roots as follows: 10 roots, 15 cts.; 100, 75 cts.; 1000, \$5.00. If wanted by mail, add 8 cts. for 10, or 50 cts. for 100, postpaid. They are just as sure to grow as a potato or horseradish root, and will blossom profusely this present season.

IGNOTUM TOMATOES.

It is probably now too late for most of you to sow the seed and get plants to bear a crop. Now, we can not give away the plants as we have done with the seeds, but we will send you three nice plants, packed in a wooden box, for 10 cents; or 10 for 25 cents, by mail, postpaid. By express the price will be \$2.00 per 100. We have now in our greenhouses a splendid lot of vegetable-plants of all kinds. For prices and particulars, see our spring catalogue of plants and seeds, mailed on application. As a sample of our ability to send plants safely long distances, see the following:

Mr. Root: I bought ten Mikado tomato-plants of you last spring; and, to say the least, they far exceeded my most sanguine expectations. They were not wilted in the least when I received them, and I realized between four and five bushels of large, beautiful, thoroughly ripe tomatoes from the ten plants. I raised three varieties of tomatoes last year, and the Mikados were the only ones that ripened thoroughly. This year I am going to buy fifty plants of Mikado from you. Will you please let me know the price of the same?

Belmont, Wis., April 4, 1889.

J. HARRIE MORRIS.

THE A B C OF CARP CULTURE.

The above book is finally ready to mail. As it is almost two years since the fore part of it was printed, it ought to be well done. Our readers will understand that a great part of it is a reprint of George Finley's book, entitled "German, or European Carp." Friend Finley accumulated material for it for three or four years, and I then paid him \$200 for the right and title to the original book, together with what he had done on a new edition. After I had worked on it for about a year I found that my many cares made it almost out of the question for me to sit down and sift the chaff from the wheat as I felt ought to be done, and I therefore put the whole thing into the hands of our good friend Dr. C. C. Miller, who gave his whole time and attention to it for several weeks. Altogether we think it contains all that is valuable up to date on carp culture. As with our other books we propose to add to it, in the way of an appendix, every thing new as it comes up. The price of the book is 35 cents; by mail, 40 cents. The original book was \$1.00, and we have made it contain double the amount of matter, and illustrated it with many fine engravings, and yet sell it at only 35 cents.

KIND WORDS FROM OUR CUSTOMERS.

Goods came to hand all O. K. Thanks for promptness. Thank you for Christmas gift, biographies. Moltke, Tenn., Jan. 14, 1889. S. L. MEDEIN.

I have two plants of your white lettuce growing, which I prize very highly. Mrs. A. A. NEEDHAM. Sorrento, Fla., Jan. 17, 1889.

The seed I got of you last year were all satisfactory; the cabbage, especially, headed uncommonly well, and is a fine quality. WM SCHWAAB. Nashotah, Wis., Feb. 16, 1889.

I am glad you are sending me GLEANINGS. I used to think I could not afford to take it, but I think I have lost a good bit by not taking it long ago. CHARLES CHANDLER. Pennsville, O., Feb. 9, 1889.

You "beat the Dutch" for promptness. The goods I ordered of you on the 9th arrived on the 12th, and in fine condition. I did not expect them before the 15th. My neighbors are well pleased with their sweepers. Accept my thanks for your promptness, also for your letter of advice. Peachville, Pa., Mar. 23, 1889. C. A. LEWIS.

MRS. HARRISON'S ORPHANS, AND THE STORY OF THE BIBLE.

The orphans enjoy the Story of the Bible very much indeed. Katie reads, while Lucy peeps over her shoulder to see the angels. The style is simple and easy, and real fascinating to young people. Peoria, Ill., Feb. 11, 1889. MRS. L. HARRISON.

I would no more think of doing without GLEANINGS than some other necessity. Your trip to California did me more good than any other description of the country I ever read, because I know you are truthful. W. McDOUGAN. Santee Agency, Neb., Jan. 15, 1889.

I wish to congratulate the editor on the improvements made in GLEANINGS. It grows better and more interesting with each issue. I hope the editor may long continue in the good work, and be well paid for it too. Prospects are good for another year. J. B. RIGGENS. Swanton, Neb., Feb. 18, 1889.

I have received your A B C, and am proud and happy to get such a beautiful book as a present from the author. I have read most of it, and like it better than any of the other bee-books I have seen. You should be happy to be able to give so much for so little money. I have your picture and biography in the book with the others taken from GLEANINGS. J. F. MCINTYRE. Fillmore, Cal., Jan. 7, 1889.

I am very much interested in your Notes by the Way, especially that concerning David C. Cook. We have used in our Sunday-school for about 15 years, his literature. I was very much surprised at his prosperity, when I think of the difficulties he had to surmount, in the way of other publishing companies, etc. We think GLEANINGS the paper any way. E. R. A. and B. BRAINARD. Postville, Ia., Jan. 21, 1889.

Mr. Root:—At a meeting of the Peoria Scientific Association held last evening, a very cordial and unanimous vote of thanks was extended to you for the beautiful and valuable volumes which found their way to the museum last week, as well as for the Feb. No. of GLEANINGS. I assure you we are deeply grateful to you for these favors. The books are of incomparable value to one who is interested in the subject of bee-culture, and I shall take pleasure in recommending them to my friends. Peoria, Ill., Feb. 9, 1889. M. LOUISE WHITE.

GLEANINGS AND THE TRAVELS.

Friend Root:—"Beeology" does not awaken the same interest with me in winter when my bees are at rest as in summer when their music is heard in every quarter; yet GLEANINGS has always been a welcome visitor at my "news-table" since I first formed its acquaintance, and especially so for the

past few months, as I read the description of your journey to the Pacific coast. I am quite familiar with the route you traveled. I took the same journey in 1882, but went much further, and did not stop till I landed on a branch of the McKenzie River, near the head waters of the Youcan.

J. F. CALLBREATH.

White Lake, N. Y., Jan. 21, 1889.

The bill of goods came to hand in fine shape, and such a handy package! I would advise all ordering small goods to have them rolled up in perforated zinc.

A. A. PARSONS.

Avon, Ind., March 18, 1889.

The seeds and cutlery I ordered of you came all right in due time. The plated knives and forks are splendid—about a third cheaper than we could get them here; and the pocket-knives are first-rate for the money. Please accept thanks.

Morristown, Ind.

MAD. TALBERT.

GLEANINGS CONSTANTLY GROWING BRIGHTER.

Notes of Travel prove very interesting reading. GLEANINGS constantly grows brighter and better. Its artistic beauty is a joy forever. Long live GLEANINGS and its energetic editor.

Gallinas, Texas, Mar. 11, 1889. W. A. MCPHAIL.

Strawberry-plants received all right. Many thanks for your promptness. I do think they are the finest-rooted plants I ever saw, and the best packed and put up. I showed them to a nurseryman, and he said he had been shipping plants a good while, but he never could put them up as those were.

Hickman, Ky., March 19, 1889. J. O. BARNES.

While kind words are pouring in to GLEANINGS and its publisher, let me say a few words for one, a supply-dealer brought before us by the help of GLEANINGS—J. M. Jenkins, Wetumpka, Ala., a man who not only tries to satisfy his customers, but does it.

S. C. CORWIN.

Sara Sota, Fla., Feb. 28, 1889.

The new Langstroth is received; very creditable to the reviewers. Though retaining the fine flavor of the original work, all that was essential and characteristic, it has much new matter, and is up to the times, and worthy of a double star in your catalogue—a remarkable production, with all the attractiveness of a new book.

D. F. SAVAGE.

Hopkinsville, Ky., March 11, 1889.

PLEASED.

I received the goods you sent me, in good order. The Little Detective scales is a beauty, and weighs accurately. The 554 sections are good enough for me. I ordered only 500. The foundation is the best I ever saw. I want to say, also, that GLEANINGS is a welcome guest, and read with interest. Our Homes is the best of all. Leave that and the Tobacco Column out, and I don't think I would renew.

W. A. WILLIAMSON.

Friendly, W. Va., Feb. 11, 1889.

THE NOTES OF TRAVEL.

I greatly enjoy the Notes of Travel. They give me the California fever even more than I had it when I went there to spend the winter of 1885. The biographical sketches are also very entertaining. It is a pleasure to see what a number of the best bee-keepers are Christian people. The past season has not been very good. I began the season with 182 colonies in three apiaries, and secured about 2500 lbs. of honey. Though this is little, my neighboring bee-keeping friends did not do as well.

Edinburg, O., Jan. 23, 1889. C. R. BINGHAM.

Through your kind indulgence I have enjoyed (I should have said we have enjoyed) the visits of GLEANINGS for about three-fourths of a year on tick. But I have the money now, and I herewith forward it to you. We have nearly decided notwithstanding our bees do poorly, that we can't do without GLEANINGS from other considerations—the children say, especially if you take any more California trips. We like the tone and spirit of its comments and editorials and—its sermons.

Fullerton, Neb., Jan. 20, 1889. J. E. FAUCETT.

OUR SOLAR-WAX EXTRACTOR, AND HOW IT WORKS.

The goods ordered Jan. 16 came to hand Feb. 9, all in good shape. I couldn't eat dinner till I saw inside that wax-extractor, and then it fairly took my appetite. I couldn't rest till I saw whether it would melt wax, and so I set it out by the side of the smoke-house, and put in some old tough combs, and in a very few minutes they were melting into the nicest wax I ever saw. It astonished even the natives.

ALLEN BAGLEY.

Siloam, Ark., Feb. 10, 1889.

THAT VISIT TO CALIFORNIA.

Friend Root:—I see on page 164, that Messrs. Osburn and Gilchrist have expressed their dissatisfaction or disappointment, caused by your not making them a visit while you were in California. I do not think that you were altogether at fault, and I should not be surprised if there were many more whom you missed, making such a flying trip as you did. When you called on your humble servant he was away from home, and you drove nine miles to see him. Although we had but a two-hours' chat, yet I shall never forget it. I am glad to know that you are planning another journey, and that Mrs. Root (and Huber) are coming with you. I wish you to be sure to call and see me. This time I shall try to be "at home," and have my "Dickens curiosity shop" in a little better order, and perhaps have something more inviting than "bachelor's hall," unless you come too quickly.

W. W. BLISS.

Duarte, Cal., Mar. 19, 1889.

GLEANINGS AND ITS POLICY.

The seeds and sample squash-boxes, feeder, etc., came to hand, all right, and the express was only \$2.75, which was not more than I expected. I hope I shall get a few more subscribers for GLEANINGS, for I think it not only a good bee-paper, but a good paper to have around. In these days, when the "almighty dollar" seems to take the first and almost last place, in most people's minds, even Christians', it is very refreshing to take up a business paper that brings before the minds of its readers constantly that whatever we do should be done in the name of the Lord Jesus. To take up a fruit or bee paper that takes up a large part of its space in throwing dirt, or in private squabbles, is not edifying or profitable; and while I would express my views and opinions as distinctly and impartially as I could, I would also be willing they should do the same; and if they did knock some of the corners off my pet hive, I would not think it necessary to bite their heads off for doing so. I had begun to think, before I got hold of GLEANINGS, that most bee-men were about as waspish as their hybrids, which are not a very charitable conclusion to arrive at; but I must stop, for this is your "busy day." I generally think of you as the busy man, till it makes my head swim.

THOMAS SLACK.

Waterloo, P. Q., Mar. 18, 1889.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of queens, bees, and apiarian supplies in general, from the following parties, who will be glad to furnish them to applicants. Those marked with a star (*) also deal in fine poultry.

J. H. Larrabee, Larrabee's Point, Vt.

Berlin Fruit Box Co., Berlin Heights, O.

W. E. Clark, Ori-kany, N. Y.

S. W. Morrison, Oxford, Pa.

J. W. Bittenbender, Knoxville, Iowa.

J. N. Colwick, Norse, Texas.

Martin & Macy, North Manchester, Ind.

We have just printed for Elijah Debusk, Friendship, Va., his annual list of bees and supplies.

J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

We have, ready for mailing, 100 large, light, tested Italian queens, imported mother, Sept. and Oct., 1888, rearing, very fine, at \$1.50 each. Untested, \$1.00; per doz., \$10.00. Send for circular. Money orders, New Iberia, La.

78d

[*] In responding to this advertisement mention GLEANINGS.

STRAW BLACK GOOSE RASPB DEW

BERRIES

CURRENTS and GRAPES.

ADA

Large, Late, Hardy, Prolific,
Black RASPBERRY, Latest of
all in Ripening.

FIRST-CLASS PLANTS AT LOW RATES.

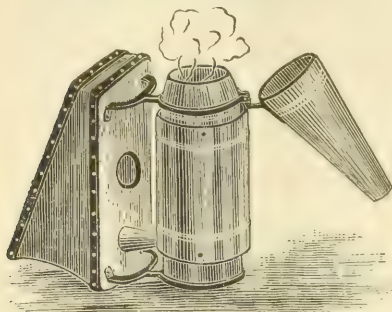
THEO. F. LONGENECKER,

Correspondence Solicited. 3tfdb Dayton, Ohio.

☞ In responding to this advertisement mention GLEANINGS.

1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. CLARK's illustrated price list. He is rock bottom for all supplies, and don't you forget it.



W. E. Clark's Improved Hinge-Nozzle Quinby Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York
3-14db ☞ Mention Gleanings.

B. J. MILLER & CO.,

NAPPANEE, IND.,

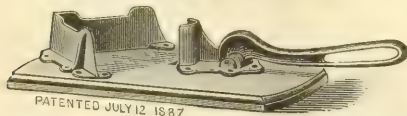
BEE - HIVES AND ITALIAN QUEENS.

4¼x4¼ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 1tfdb

☞ In responding to this advertisement mention GLEANINGS.

SECTION PRESS.

PRICE \$2.00.



PATENTED JULY 12 1887

For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to 5-16db
WAKEMAN & CROCKER, Lockport, N. Y.

☞ In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3-14db Box 11. Higginsville, Mo.

☞ In responding to this advertisement mention GLEANINGS.

THE . BEST . HIVES

FOR THE LEAST MONEY.

BOTH SINGLE AND DOUBLE WALLED.

If you need any hives don't fail to send for my price list, as I make a specialty of hives, and think I have the best arranged hives on the market, at bottom prices. My hives take the Simplicity frame. 3tdb

J. A. ROE, Union City, Ind.

☞ In responding to this advertisement mention GLEANINGS.

LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10-frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, \$7.00; 2 at one time, \$13.00; 4, same, \$24.00. Remember the risk of shipping lies with me. Address JNO. A. THORNTON, Exp. office, Ursa, Ill. Lima, Adams Co., Ill. 6-11db

HOW TO MANAGE BEES;

OR, BEE-KEEPING FOR THE "MASSES."

Every farmer, and all beginners in bee-keeping, as well as those more advanced, should have it, as it is especially adapted to their wants. Fully up to date. Price \$1.00, by mail. In beautiful paper covers. Illustrated. Address

86d W. S. VANDRUFF, Waynesburg, Pa.

☞ In responding to this advertisement mention GLEANINGS.

Do You Want Knowledge?

Send a postal for price list of International Encyclopedia, 15 vols., royal 8vo, over 13,000 pages, with maps and illustrations. It excels all in comprehensiveness, conciseness, lateness of information, convenience, and cheapness, C. O. D. Liberal discount for freight charges. 6-7-8d

A. H. VAN DOREN,
Mons, Bedford Co., Va.

☞ In responding to this advertisement mention GLEANINGS.

HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb

INDUSTRIAL Hives and Apiarian Supplies.
Pure I. Queens, Bees, S. C. B. Leghorns, Bronze Turkeys, Toulouse Geese, and M. G. Carp. Free list. 5-9db
J. W. CLARK,
Clarksburg, Mo.

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.
See advertisement in another column.

ON 30 DAYS' TRIAL.

THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail Circulars free. EGLESTON TRUSS CO., Chicago, Ill.

☞ In responding to this advertisement mention GLEANINGS.

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THE EASIEST WAY TO GET YOUR CHAFF HIVES,

Is to sell a few for me to your neighbors, and make profit enough to buy your own. Write for terms at once.
J. A. ROE, Union City, Ind.

In responding to this advertisement mention GLEANINGS.

HOLY-LAND QUEENS A SPECIALTY.

BEES BY THE POUND, IN A L. FRAME.
BEE-KEEPERS' SUPPLIES.

GEOR. D. RAUDENBUSH, 445 CHESTNUT ST., READING, PA.
Mention GLEANINGS. 9-10-11d

J. W. K. SHAW & CO., Loreauville, Iberia Parish, La.

All \$1.50 queens are sold. We have warranted queens, fine, light yellow, \$1.00 each, 6 for \$5.00. Untested, 85 cts.; \$9.00 per doz. Virgin queens, 3 for \$1.00. Tested queens, each, \$1.25, in May. All imp. mothers. Postal orders on New Iberia, La.

Mention GLEANINGS. 9-11d

WANTED! At Plattsmouth, Nebraska, to Sell 3-Frame Nucleus Colonies Italian Bees with Queens, at \$2.50 Each.

9tfdb J. M. YOUNG, Box 874, Plattsmouth, Neb.

THE BRICHEST FOUR-BANDED GOLDEN ITALIAN BEES AND QUEENS, AND THE REDDEST DRONES.

Price, select tested, \$3.00; tested, \$2.00. Untested, in May, \$1.25; June and after, \$1.00.

9-12db L. L. HEARN, Frenchville, W. Va.

In responding to this advertisement mention GLEANINGS.

Choice Italian Queens!

Tested, \$1.50; untested, \$1.00. None but pure Italians in our apiary.

Brood Foundation 43 cts. per lb. Foundation for sections, 55 cts. per lb. 7d

MISSIS S. & M. BARNES, Piketon, Ohio.

Italian and Albino Queens and Bees

OR THEIR CROSSES,

Ready to Ship May 15th.

The crosses of these two races make the finest bees I ever saw. They are large, very light colored, and good workers. Will sell in any shape or quantity to suit purchaser. Send for price list, and five cents for sample of bees.

9-11-13d A. L. KILDOW, Sheffield, Ill.

In responding to this advertisement mention GLEANINGS.

Apiarian Supplies.

V-GROOVE SECTIONS OF BASSWOOD,
SHIPPING-CASES OF BASSWOOD,
HIVES OF WHITE PINE COMPLETE.

Manufactured by

WARREN MFG. CO., Riverton, Virginia.

In responding to this advertisement mention GLEANINGS.

100 TONS OF COMB HONEY

Will undoubtedly be put on the market this season in our

FOLDING PAPER BOXES.

Send for catalogue, 20 pages, free. Sample box, 5c. Our prices defy competition.

9-20db A. C. CRAWFORD, S. WEYMOUTH, MASS.

In responding to this advertisement mention GLEANINGS.

EGGS FOR HATCHING. P. Rock, Light Brahma, R. C. B. Leghorn, P. Duck, \$1.25 per nest; two settings, \$2.00. W. P. Rock, \$1.50 per 13. Choice pure-bred stock. Circular free. S. P. YODER, E. Lewistown, Mahoning Co., Ohio.

1884. TAR-HEEL APIARIES 1889.

Bees, \$1. per lb.



American Albino Italian

Safe arrival - bees, queens, and nuclei. Warranted queens, \$1 each; \$5 for 6. Nuclei, 75c per L. frame. No new list. Prices same as for last year. Selected breeding Queens, \$5.



Golden Italian Worker Bee.

Sample Bees and Drones, 10 cts. Finest in the United States.

8d ABBOTT L. SWINSON, Goldsboro, N. C.

In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	June	Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75	
Tested.....	3 00	2 75	1 75	1 50	
Untested.....		1 25	1 00	1 00	
6 Untested.....		5 50	5 00	4 50	
12 Untested.....		9 50	9 00	8 50	

Contracts taken with dealers to furnish queens by the week at special rates. Address

5-21db J. P. CALDWELL, San Marcos, Tex.

SECTIONS, \$2.50 PER M,
when cash accompanies order. Other goods proportionally low. Send for sample section.
9-11d E. S. MILLER, Dryden, Mich.

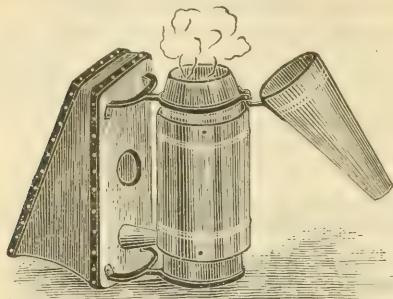
FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars. DR. A. B. MASON,

9-14db Auburndale, Ohio.

1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. CLARK'S illustrated price list. He is rock bottom for all supplies, and don't you forget it.



W. E. Clark's Improved Hinge-Nozzle Quinby Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York
3-14db Mention Gleanings.

THOROUGHbred White P. Rock, W. Wyandotte eggs, \$1.50 per 13; L. Brahma, P. Rock, L. Wyandotte, W. and B. Leghorn eggs, \$1.00 per 13. **Italian Queens**, reared on the Doolittle plan, select tested, in May, \$3.00; June, \$2.50. Warranted, May, \$1.25; June, \$1.00.

C. H. WATSON,
7-12db Newtown, Bucks Co., Pa.
 In responding to this advertisement mention GLEANINGS.

Minnesota Ahead!

We are selling L. hives with T supers for 55c., and brood-frames for \$1.00 per hundred. Send for circular before ordering elsewhere. 7-10db
WM. H. BRIGHT, Mazeppa, Minn.

S. D. McLEAN 1889
Will sell bees by the pound, Colonies, Nuclei, and Queens, **Cheap**. Write for terms to 3-9d COLUMBIA, TENNESSEE.
 In responding to this advertisement mention GLEANINGS.

BEES FOR SALE!

Colonies, Nuclei, Queens (Tested and Untested), at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,
Columbia, Tenn.

**VIRGIN QUEENS.**

The bulk of the traffic in queens in the near future will probably be in "Virgins." Every person sending direct to the office of the *Canadian Bee Journal* one dollar for one year's subscription (either renewal or new), in advance, will receive a beautiful virgin queen (value 60 cents), as soon as possible, in the season of 1889. Queens will be sent in the same rotation as each is received. American currency, stamps, and money orders received at par.
THE D. A. JONES CO., BEETON, ONTARIO, CAN.

ITALIAN QUEENS.

Tested, \$2.00, \$1.50, and \$1.25, in Apr., May and June. One untested, May, \$1.00; after June 1st, .75. Three untested, May, \$2.50; after June 1st, \$2.00. Three-frame nuclei, with untested queen, May, \$3.50; June, \$3.00; after, \$2.60; with tested queen, add 50 cts. For prices of 2-frame nuclei bees, per lb. and ¼ lb., full colonies, foundation, and beekeepers' supplies, write for price list. Address 6-11db **JNO. NEBEL & SON, High Hill, Mo.**
 In responding to this advertisement mention GLEANINGS.

Apr. 1. For 60 Days. 1889.

We have on hand a large stock of one-piece sections, which are first class. To reduce stock we will name very low prices for the next 60 days, in any size lots from 1000 to 100,000 or more. Save money by letting us know what you want. Other supplies to correspond in price. Price list free.

7tfdb **SMITH & SMITH,**
Kenton, Hardin Co., O.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.

If You Want Full value for your money you should see my catalogue before purchasing. Japanese buckwheat, \$1.75 per bushel; 20 varieties of potatoes. Bees, queens, and supplies at low rates. **CHAS. D. DUVAL,**
7tfdb Spencerville, Mont. Co., Md.

In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75
PER M. SHIPPING-CASES VERY LOW.
SEND FOR PRICES.

COODELL & WOODWARD MFG. CO.,
3tfdb **ROCK FALLS, ILLINOIS.**

In responding to this advertisement mention GLEANINGS.

COMB FOUNDATION.

Brood, 32c; thin, 42c; 20 lbs. or more, 30 and 40c.
8-9d **H. L. GRAHAM, Leits, Iowa.**

A NEW BEE-BOOK REVISED, and DADANT'S FOUNDATION.
See advertisement in another column.

PURE ITALIAN BEES & QUEENS.

Full colonies and nuclei, per frame, 60c. Tested queens, \$2.00; after June 1, \$1.50. Untested queens, \$1.00; after June 1, 75c. Remit by postoffice money order, registered letter, or draft on New York. For any other information, address

C. W. JONES & CO.,
4-9db **Bryant Station, Maury Co., Tenn.**
 In responding to this advertisement mention GLEANINGS.

The ABC of POTATO + CULTURE.

HOW TO GROW THEM IN THE LARGEST QUANTITY, AND OF THE FINEST QUALITY. WITH THE LEAST EXPENDITURE OF TIME AND LABOR.

Carefully Considering all the Latest Improvements in this Branch of Agriculture up to the Present Date.

Written by T. B. TERRY, of Hudson, O.

ILLUSTRATED BY TWENTY ENGRAVINGS.

Table of Contents: Soils, and their Preparation.—Manures, and their Application.—When, and How Far Apart Shall we Plant?—Shall we Plant Deep or Shallow?—Shall we Plant in Hills or Drills?—How to Make the Drills, and Fill Them.—Selection and Care of Seed.—Cutting Seed to One Eye.—Planting Potatoes by Machinery.—Harrowing after Planting.—Cultivating and Hoeing.—Handling the Bugs.—The Use of Bushel Boxes.—A Top Box for the Wagon.—Digging.—Storing.—What Varieties shall we Raise?—Potato-growing as a Specialty.—Best Rotation where Potatoes are made a Special Crop.—Cost of Production, and Profits.

Besides the above, we have recently added an appendix of 8 pages, bringing the book up to the present date, and containing an account of all the improvements made during the past two years.

PRICE 35 CTS.; BY MAIL, 38 CTS.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—We quote white 1-lb. sections, at 15¢@16¢; fall or dark, at 12¢; 2-lb. California white, 13¢@14¢; amber, 11¢@12¢. Extracted, in 10-lb. cans, white, 7¼¢@8¢; amber, 7¢@7½¢; barrels or kegs, 5¢@6¢. *Beeswax*, 18¢@20¢. Our market is getting into good shape for the new crop.

April 22. CLEMONS, CLOON & Co.,
Kansas City, Mo.

COLUMBUS.—*Honey.*—We have no strictly No. 1 honey on our market, and could find sale for some fine white stock. We have a large amount of medium and dark stock on hand, and scarcely any market for same. Dark, 10¢@12¢; medium, 12¢@14¢; white fine, 15¢@17¢.

April 19. EARL CLICKENGER,
Columbus, Ohio.

BOSTON.—*Honey.*—No change in prices on honey or beeswax. Trade is using maple sugar and syrup. Sales of honey very slow. **BLAKE & RIPLEY.**

April 23. Boston, Mass.

DETROIT.—*Honey.*—The market is very slow. Best white, in one-pound sections, quoted 15¢@16¢. There are not many nice lots in the commission houses. Extracted, 8¢. *Beeswax*, quiet at 22¢@23¢.

Bell Branch, Mich., April 22. M. H. HUNT.

ALBANY.—*Honey.*—Market is slow; very little call, and very little stock. Will be in good shape for the new crop. **H. R. WRIGHT.**

April 23. Albany, N. Y.

ST. LOUIS.—*Honey.*—No change to note. Very little trade. *Beeswax*, prime yellow, 22¢.

April 22. D. G. TUTT GROCER CO.,
St. Louis, Mo.

PRICE LISTS RECEIVED.

Since our last issue we have received price lists of queens, bees, and apianian supplies in general, from the following parties, who will be glad to furnish them to applicants. Those marked with a star (*) also deal in fine poultry.

K. W. Turner, Medina, O.
J. B. Hains, Bedford, Cuyahoga Co., O.
E. L. Gould & Co., Brantford, Ontario, Canada.
C. W. Costello, Waterboro, York Co., Maine.
G. K. Hubbard, Ft. Wayne, Ind.
F. A. Salisbury, Syracuse, N. Y.
Joseph M. Hambaugh, Spring, Brown Co., Ill.
C. A. Stockbridge, Ft. Wayne, Ind.
William H. Barr, Whiteville, O.
Jerry A. Roe, Union City, Ind.
H. H. Brown, Light Street, Pa.
N. A. Knapp, Rochester, Lorain Co., O.

CONVENTION NOTICE.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary.

Brantford, Ont., Can.

R. F. HOLTERRMANN, Sec'y.

The second meeting of the York and Cumberland Bee-keepers' Association will be held in Good Templar Hall, South Waterboro, Me., May 15, commencing at 9:30 A.M. A cordial invitation is extended to all to be present. Matters of interest will be discussed. Bring your hive, or some useful implement for exhibition. Hotel accommodations may be had in the village at reasonable rates.

C. W. COSTELLO, Sec'y.

ITALIAN BEES AND QUEENS. Tested queens, \$1.50. Untested, \$1.00. Bees, per lb., \$1.00. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list.

MISS A. M. TAYLOR,
9-10d Box 77, Mulberry Grove, Bond Co., Ill.

(In responding to this advertisement mention GLEANINGS.)

50 COLONIES OF BEES FOR SALE, IN LOTS to suit purchaser; also Vandervort section fdn. machine.

WILL ELLIS, St. Davids, Ontario, Canada.

FOR SALE.—One Barnes combined circular saw, with necessary gauges for making the S. hive, o. b. c. Price \$20.00, in good running order.

9-10d W. T. ZINK, Nichols, Greene Co., Mo.

BEE-SUPPLIES.

ONE-PIECE V-GROOVE WHITE BASSWOOD SECTIONS.

SURPRISE YOURSELF ON LOW PRICES BY WRITING FOR FREE SAMPLE AND PRICE LIST.

Goshen Bee-Supply Co., - - Goshen, Ind.

(In responding to this advertisement mention GLEANINGS.)

"VALLEY FARM" APIARY.

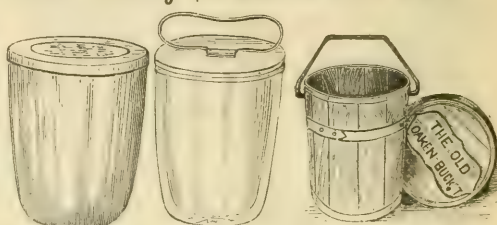
To reduce stock I will sell 5 to 10 colonies of Italian bees in Simp. hives. Queens were bred from one of Mr. Doolittle's \$4.00 tested queens. Price \$5 to \$8, according to prolificness of queen, etc.

G. WIEDERHOLD, Tonkers, N. Y. Opp. Dunwoodie Station.

Mention GLEANINGS.

9-10-11d

Glass Honey Tumblers and Pails.



Glass Tumbler. Nos. 788 and 789. Screw-top Pail. Nos. 775 to 778. Oaken Bucket Pail.

Above we present our three staple styles of glass honey-packages for this season. We are unable to get any more of the screw-top glass pails, shown in our catalogue, such as we have been selling for a number of years, and we have substituted in its place the one shown in the center above. We have this made specially for our trade, and no one else handles it. The following revised table of prices takes the place of those in our catalogue. Please notice important changes, and please be careful to be specific in telling what you want when you order. Give the quantity, number, name, and price, to avoid mistakes.

TABLE OF PRICES—NO CHARGE FOR PACKAGES.

Please order by number and name, and give price.

Number and Name.	Capac.	Price.	Barrels.
No. 778, 1-lb. tumbler.....	10 oz.	3 28	2 50 250 85 30
No. 789, one-pound tumbler.....	16 oz.	3 30	3 00 200 5 20
Nos. 788 and 789, nested.....		6 57	5 25 200 9 00
No. 775, 1-lb. screw-top glass pail.....	11 oz.	5 40	3 50 250 7 30
No. 776, small pound screw-top pail.....	14 oz.	5 42	3 75 200 6 60
No. 777, large pound screw-top pail.....	17 oz.	6 32	4 75 150 6 60
No. 778, 1-lb. screw-top glass pail.....	24 oz.	7 65	6 00 100 6 60
1-lb. Oaken Bucket pail.....	10 oz.	5 42	3 75 200 6 60
1 lb. Oaken Bucket pail.....	16 oz.	5 45	4 30 150 6 10

In lot of 5 barrels, any one or assorted kinds, 5% discount. Please notice these points in the table above.

1. The capacity as given is what each will hold, well filled with honey of good consistency.

2. The price of one, 10, and 100 is given in the first three columns; the fourth column gives the number in a barrel, and the 5th column the price of a barrel.

3. Notice that it is much the most economical to buy them in barrel lots, if you can use so many. The reason for this is, that all manufactures of glassware have a uniform charge for packages, and a barrel has the largest capacity for the price of any thing used. Every barrel, large or small, costs us 35 cts.; a box, holding only half as much, costs the same. Thus by taking the largest barrels, well filled, we can give you the most value for the money.

4. We can not break packages of 100 or barrels at the price of a full package.

5. The most skilled packers are employed, and goods are delivered to transportation companies in good order; we will not, therefore, be responsible for any breakage.

Send your orders early, while we have plenty of stock and can maintain above prices.

A. I. ROOT, Medina, O.



Vol. XVII.

MAY 1, 1889.

No. 9.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES—NO. VI.

ENGAGING SOME ONE TO HIVE SWARMS.

IF you expect some one of the farmer's family at the out-apiary to hive swarms for you, the matter of compensation should be agreed on in advance. As to what this should be, it is just as hard to say as it is in the matter of rent. On page 946, GLEANINGS, Dec. 15, 1887, are answers to the question, varying from 10 to 75 cts., Dadant & Son paying the latter price for hiving each swarm. Turn to page 9, Jan. 1, and read the very interesting article from C. P. Dadant, after which you will agree that, in their case at least, they are not so far out of the way in paying such high prices for rent and for hiving swarms. They have very few swarms, and they expect them to be hived by a man who has judgment to hive them in good shape, so they consider it a matter of policy to pay a good price for the few that do come out. If only one swarm comes out in a day or two days, you can well afford to have them hived at a cost of 75 cts. rather than have them go off. If, however, you have an average of 6 swarms per day, a man could make very fair wages at 25 cts. each, or \$1.50 per day, especially as the swarming does not continue all day long. Another thing that might make a difference, is the surrounding timber. It is one thing to hive a swarm from a low apple-tree, and quite another if the swarm hangs on the top of a tall forest-tree. In some cases it may be the better way to pay some one a fair price by the month or week. There is, however, an advantage in paying by the swarm, for then the one employed will be more sharply on the lookout not to let a swarm get away. There are, however, some who are so faithful that they will keep just as close watch, whether paid one way or the other.

In any case it is a good plan to pay so well that the one employed may feel a pleasant interest in the work.

If your queens are all clipped, then there may be less labor; but if the swarms are hived, fully as much intelligence is needed, but they may be managed in such a way that no hiving will be needed. I never had any one watch for swarms for me in an out-apiary but one summer, and then I had a young lady watcher, of little physical strength, but bright, and exceedingly faithful. When a swarm issued she immediately looked for the queen, which she rarely failed to find, caged it, and put it where the bees of the colony could take care of it, then wrote down in a memorandum-book the number of the colony and the date of issue. When I came to the apiary some time within every three to five days, she submitted to me her memorandum and gave me a full history of any thing unusual that had occurred.

LAYING OUT THE APIARY.

After you have made such an agreement that you think there will be no chance for any disagreement in the future, look your ground over carefully and decide just where you will place your hives, and it will be well to get every thing ready in advance so far as you can, so that, when your bees are brought on the ground, the hives can be set directly in their places. As I am trying to tell especially what is appropriate for those to know who have had no experience in out-apiaries, it is perhaps not appropriate for me to say much about the matter of arranging apiaries, for my readers are supposed to have experience in such things; but a little in that line may do no harm. It is desirable, if possible, to be able to drive quite close with a wagon, so as to load and unload hives, etc., conveniently, and I should like to have the place for driving up at the back of the hives, if it can easily

be so, in order that the flying bees may not find your horse in their line of flight. Of course, if your hives face in opposite directions, as is sometimes advisable, it may not be possible to get very near without getting in the way of the bees.



CHEAP ARRANGEMENT FOR BEE-STANDS.

The lay of the land may have something to do with the order in which the hives are placed; but whatever the arrangement, let your distances be accurately measured, and let every stand be leveled in one direction with a spirit-level, so there shall be no danger of combs hanging out of plumb. I like a very cheap stand that can be easily leveled, costing so little that I can afford to let it stand the year round, and thus avoid measuring and leveling each spring. Take two pieces of fence board or other board, long enough to hold two hives (if you don't want your hives in pairs let the boards be short enough for a single hive); lay them parallel on the ground, and level them, letting one be enough lower than the other (an inch or so) to allow the hive the proper pitch forward; then lay, across these, loose boards, that may be old, long enough to accommodate the hives.

C. C. MILLER.

Marengo, Ill.

I agree with you, friend Miller, that, after a stand is once leveled up, and fixed as we want it, we can not afford to move it and have to go over the same thing again. Now, in the stand you describe and illustrate you do not say that any part of it projects beyond the hive; but I am afraid, from the looks of the picture, that it does project; and one of the first things I decided vehemently in bee culture was, that no bee-hive should ever stand on a board, stick, or any thing else, that visitors might step on. I need hardly tell you why. A great many times in visiting apiaries—that is, apiaries belonging to a certain class of people, I would find the hive sitting on a board or stick. After the grass has got so high as to conceal the board from view, somebody comes along and steps on one end of it, and the hive is tilted. Of course, they will not have presence of mind enough to get away until the bees are out in force to resent the insult. Another thing I decided on was, that there should be no holes under the stand where toads, spiders, snakes, or any thing else, could hide. Our chaff hive has no stand at all, as you know; and the Simplicity has none except the cover that is used as a bottom-board, and this is set on four half-bricks; and may be your stand is just as good as that everlasting Simplicity top or bottom board. But I have had my say about it, and the friends and yourself and the readers of GLEANINGS can now fix theirs as they have a mind to.

RAMBLE NO. 15.

A SWA-REE.

SEEMING much, recently, in the journals about I, We, Us & Co., the Rambler will say *we* after this. Somebody has said that *we* meant himself and his wife. All I have is my pony Nig, and Nig and I are together much of the time, so *we* means the man and horse in our case.

A hardware merchant, an enthusiastic amateur bee-keeper of Whitehall, had called upon the Rambler many times, and, in answer to many pressing invitations, one bright August afternoon found us at Mr. McLachlin's home. Whitehall is at the head of navigation on Lake Champlain, and also at the head of the raging Champlain Canal. The village presents the appearance of some of those Alpine villages in Switzerland, which the Rambler has visited (in his dreams). Streets run on terraces above each other, and many a gorge and rocky nook surprise the traveler. I found Mr. McL.'s residence surrounded with outcropping rocks, and in the rear of the house a rocky nook surrounded with evergreens, and provided with rustic seats and tables, which at the time seemed to lie around in some confusion. Mr. McL. explained that a swa-ree the evening previous had disarranged things. The Rambler was upon the point of asking what was the nature of a "swa-ree," when it occurred to him not to expose his ignorance before cultivated people, thinking he would pick up from conversation whether it meant swarming bees or something to eat or drink. We were just so tickled that we held our tongue (Nig and I), for Mrs. McL. then and there suggested that we have a swa-ree after tea. We (Nig and I) said we would help to the best of our ability.

Mr. and Mrs. McL. had a fine family circle of children, from a babe in the cradle to a boy eight or ten years old, and we were pleased to note with what care all questions were answered and correctly explained, and how bright and intelligent the children were, and interested in every thing the parents were. Church, Sunday-school, day-school, the bees, poultry, the cow, horse, and flowers, were all subjects of conversation. The careful answers to their many questions led them to put implicit confidence in the parents, and it was a beautiful home and family, so much in contrast with many a sad home in which the Rambler has been.

After tea, all prepared for the swa-ree; and the Rambler was in a sweat of consternation to find that the leading part had been assigned to him. To find relief we went out by the back door and interviewed the hired girl. As a leading question, we (Nig and I) asked her if she was fixing for the swa-ree. Said she, "Arrah, now, mon! go along wid yees. I niver shwore in my loife. It's a purty question yees be axin me—me, a mumber of the Catholic church, and to-morry the day of confission—out wid yees!" Investigation didn't proceed further in the direction of hired girls with bandy dishcloths and broom-sticks. We went around the house and found the whole family, including the cat and dog and some of the neighbors, seated on the lawn near the bee-hives, and Mr. McL. said he wished me to conduct the swa-ree by explaining various matters of interest in a bee-hive.

"Well," said we, mentally, "if that's a swa-ree, the Rambler is at home." We explained that if

was late in the day to examine bees, but we would try not to rouse them too much. Mr. McL. sat down on the wheelbarrow and said his bees were very gentle, and told us to go ahead.

Upon opening the hive, it was evident, from the way things were glued, that the combs were seldom manipulated. A good amount of smoke enabled us (Nig and I) to get out the frames, make various explanations, and answer a whole volley of questions. The queen was luckily soon found and exhibited; also drones and drone comb, queen-cells, etc. It was solid interest all around us. The baby crowed, and the hired girl's opinion of us seemed to be on the rise as she beamed on us around the corner of the house.

The Rambler forgot he was the principal actor in a swa-ree, when, owing to a defective stand, the hive gave a lurch and slid partly to the ground, grinding up a few bees and making the rest mad; and from a vigorous remark from Mr. McL., as he went over backward on the wheelbarrow, with dog and boy mixed up with him, we judged the swa-ree had just commenced in dead earnest. The Rambler got his head into a grapevine, and secured a position to view the scene. The shouting, running, squalling, and kicking, "beggars description." Let me give you a faint idea with the pencil. The Rambler is now up on the swa-ree question, and is open for engagements.



A SWA-REE.

After the field was clear, things were righ'ed and all unanimously voted, that, next to dynamite bombs, a swarm of bees could get up the liveliest kind of a swa-ree.

I found many things of interest with Mr. McL. He was enthusiastic on button-ball honey. The marshes on the lake, to the extent of thousands of acres, are covered with this bush, and a great amount of honey seems to be secreted. Quantities of basswood are also near by, and bees work here by moonlight when the flow is profuse.

Mr. McL.'s few colonies were wintered in a portion of his barn. A room on the north side, under the evergreens, was sawdust packed, and was a success. The Rambler has noticed that, whenever bees have been wintered in a room on the north side of a building, be it barn or dwelling, they usually winter well. The temperature does not change so much as when the exposure is to the south and to the sun.

Our ramble soon came to an end with Mr. McL. and his family; and as we bade them good-by we (Nig and I) little thought we should see them no more. A few months after, we regretted to learn

that they had all emigrated to Kansas. That so many of our enterprising men and bright families are leaving our midst for the West is many times looked upon with regret by the RAMBLER.

Very good, friend Rambler; but I have a little fault to find with you this time, as usual. Perhaps it is quite clear to the rest of the brethren, but I confess I have not caught on just yet so as to know what "swa-ree" means. If it means a little talk on bee culture, why do the folks call it swa-ree? No wonder our good Catholic friend thought it meant something about swearing. It seems to me that friend McL. is a little heedless about the stands to his hives. I have heard certain folks tell about people who were so awkward that they would fall down while standing still; but I never heard of a bee-hive so badly perched on its stand as to keel over. Why doesn't he have stands made the way I have recommended in my reply to Dr. Miller on the preceding page? Another thing, you did not show us in the picture any of the rocks and terraces that you refer to.

THE VALUE OF EMPTY COMBS

DURING A RUSH OF NECTAR.

I WANT to tell the readers of GLEANINGS that I never realized the use of store combs as fully as last season. It will be long remembered by the bee-keepers of central Iowa as one of the poorest seasons for many years. All through June, July, and the fore part of August, when we usually have our heaviest yield, in vain did the little busy workers search from morning till night for the coveted sweet. It was not to be found. About the 15th of August the bee keepers in these parts began to wear very long faces, and in their "visions and dreams" they were haunted by the thoughts of lean purses and unpaid grocery bills, and more especially by the thought of feeding a large amount of high-priced sugar or see the bees starve. It was about the 15th or 18th of August that I carried my trouble to my good wife—a source from which I very often get relief. Said I, "What in the world am I to do? Here it is the middle of August, and no honey. I am pretty sure we shall have to feed all the bees in the fall to save them through the winter."

Said she, "What *can* you do? I am sure it will not help matters to worry; and, besides, we *may* have some honey weather yet; but if not, we shall have to submit."

Of course, I took this as being excellent advice; but when I walked away I felt pretty sure it was too late in the season for any surplus. Two days later I was walking down the path in the direction of the barn, expecting to assist a neighbor to thrash; but when opposite the apiary I heard a certain roaring sound in the air that the experienced apiarist at once knows to mean a boom on honey. My olfactories in the mean time also took in whiffs of the exquisite aroma of the coveted nectar (of course, that neighbor lost the use of one hand that day). Instantly all hands were engaged in putting on top hives and store combs to all colonies that seemed strong enough to store surplus. In just 24 days there was 1000 pounds put into the store combs,

One very strong colony, that had not swarmed, stored in the 24 days 150 lbs. of surplus, being 114 lbs. more than one other colony nearly as strong that had built their comb and stored their honey in section boxes with starters. So, now, I am more than ever convinced of the value of store combs, especially in a poor season. I had only 36 colonies, as I had made sale of my bees two years before that.

D. E. BRUBAKER.

Maxwell, Story Co., Ia., March 29, 1889.

P. S.—I have taken the 36 colonies out of the cellar, without the loss of one. On the 20th of March they were gathering pollen and honey from soft maple.

D. E. B.

Friend B., had your communication come ten years ago, when we were having hot discussions in regard to the value of surplus empty combs when working for extracted honey, we should have hailed it with cheers, and I do not know but that we might hail it with cheers even yet. Certain parties, and I think that Mr. Doolittle was among them, took pretty strong grounds, to the effect that surplus empty combs were of no particular value. It was at the time when we were claiming great advantages for the extractor, and I believe most of our discussions in the matter have generally closed with a decision something like this: We get perhaps a half more honey by using the extractor; some have said twice as much. Some of the older friends may remember that I insisted that a proper use of the extractor would give two or three times the number of pounds of honey, compared with our best appliances for getting honey in the comb. Now, in the above experiment, although it is not very conclusive, it looks very much as if *four* times as many pounds were secured by the use of empty combs. Of course, the circumstances were peculiar; but if such a thing happens again, what are empty combs worth? Had we better trade them off for five or ten cents apiece, or get still less by melting them up into beeswax, or shall we stick to them, keeping them, of course, nicely protected until the time comes when they will be needed?

UNFINISHED SECTIONS.

WHEN FILLED, EQUAL TO THOSE FROM NEWLY BUILT FOUNDATION.

I MANAGE to get as many unfinished sections each year for use the next year as I can, and not interfere with the present crop. Let us look at a few points. First, the sections: Some advocate cutting out the comb and using the section again. Now, the only objection to the use of unfinished sections is the section itself. The section gets brown, or tanned, and propolis gets in the fiber of the wood, that is difficult to clean out. If I could throw away the wood with convenience, I would do so. I would never save the section for its value. I manage to keep the wood in fair condition, and have never had any one object to them when filled with white honey. Next

THE COMBS.

If they are made nice and white one year, they will be just as nice and white the next. If they have any honey in them, extract it and let the bees

clean them out and they can not be distinguished from new combs when filled with white honey. In fact, it may be whiter than a new comb, for I find that sometimes they will not make quite as white combs as at other times. I have seen them make darker new comb by the side of white old combs. I am very positive that no one can tell old combs from new combs when they are ready for market, by the looks of the combs alone.

THE HONEY.

The honey will be just as well ripened in the old combs as in the new, or else the one who manages is to blame, not the bees. G. M. Doolittle, in *GLEANINGS* for Feb. 1, 1888, has said all that is necessary to say about ripening. Every one of those opposing the use of old combs knows that, in a can of extracted honey, the ripper and heavier honey settles to the bottom, while the greener and lighter rises to the top. The same thing occurs in a cell of honey while ripening. The ripper settles to the bottom side of the cell, and the thinner rises to the top of the cell. If the cell is left as the bees make it, and not turned topsy-turvy, the outer end is the higher, so that the heavier honey goes to the lower and back end; the greener and lighter honey rises to the top and outer end of the cell, so that bees can ripen it just as thoroughly in old as in new combs. Reverse these combs, new or old, and this action of honey is reversed. The thicker will come to the outer and lower end, and the thinner will go to the higher and inner end of the cell. I always keep the same edge of the comb up when I put them back on the hive that was up when they were made. I have no honey capped that is not well ripened, that I have discovered.

THE APPEARANCE OF THE SECTIONS.

The old combs, when filled with honey, and capped over, have a rather better appearance than new combs. The bees will fill the sections out a little fuller, and fasten the combs to the wood a little better with old combs than with new. I have had some experience and good opportunity to test the matter, and there are few things I am more positive of than that section honey is just as good and of just as fine appearance, made on old combs, as on new ones; and I am very positive that no one can tell one from the other, except by the wood of the section. I want to thank G. M. Doolittle for stating the fact on page 79 of *GLEANINGS* for 1888, that the field bees do not place the nectar in the cells themselves, but pass it to the nurse-bees and those that do the housework, because I was laughed at a year ago this last winter, and again this last winter, at a bee-keepers' convention, for making the same statement. Misery likes company, you know.

N. T. PHELPS.

Kingsville, Ohio, March 12, 1888.

Friend P., we are glad to get this report, but I do not gather from it that you have carefully tried both ways; that is, side by side with those mentioned. Have you placed new sections with full sheets of foundation, alongside of unfinished, to see which is filled sooner, and which presents the better appearance for the market? Remember that so good an authority as P. H. Elwood (and I think he said that Capt. Hetherington had so decided with him) says the honey they produce from unfinished sections of the year previous is usually or always sold as second rate.

MANUM IN THE APIARY WITH HIS MEN.

HOW HE DRILLS HIS BOYS TO MANAGE HIS OUT-APIARIES.

APRIL 10.—Well, boys, this is going to be a nice day—just the day to look over the bees for the first time after their long winter confinement. Leslie, you and Fred may go to the Monkton apiary. As Fred is to run that apiary this year, I want him to go there with you; and as you have worked for me six years you need no instructions except to teach Fred all you can and to look well to the stores and queens. I will take Scott to the Mills apiary with me, as he is to run that yard.

Well, Scott, here we are at the Mills yard. How nicely the bees are flying! You may put the horse in that barn there, while I light the smokers. Now, inasmuch as this is your first season with me, I think you had better look on a while and see me work. You will learn much faster in this way than to undertake to work by yourself, as I will try to explain every thing as I go along. The first thing is to remove the cushion. How much nicer it is to use cushions than to have the packing all loose, as I used to have it! There, you see I have the brood-chamber covered with a sheet of heavy cotton cloth, spread directly on the frames, and over this you observe a sheet of enamel cloth which covers half of the brood-chamber. By so doing, the bees can cluster under the enamel cloth whenever they wish to. The other half is simply covered with a cotton cloth and the cushion over all. By this plan the moisture can pass up through the portion not covered with enameled cloth, into and through the cushion. I will now remove this covering and give the bees a puff of smoke to keep them back. This is a fine colony, 8 spaces filled with bees, and all dry and healthy. As they have only 10 combs, we can not remove any yet and leave them honey enough. As we shall probably not come here again within 10 days, it is not safe to contract too much. Out-apiaries can not be managed as closely as the one at home, where we can look to them oftener. There, about all we can do at this time is to see that they have honey in plenty and a good queen, and to see that the bottom-board and entrance are all clear. You will notice that the combs are spread further apart than they should be for summer. I spread them 1½ from center to center in winter; but now we will have them only 1½, and during the honey-flow only 1½. There, now, I follow up with the division-board, return the cotton sheet, and cover the whole top of the brood-chamber with enameled cloth, because, as the bees can now fly nearly every day, they require no upward ventilation, but need all the warmth they can generate during the early spring breeding. Next I return the cushion over all. This swarm, you see, is now compact, and well protected from cold frosty nights.

Well, here is a swarm that is much lighter—only 6 combs covered with bees. From this I can remove two combs—you may carry them to the honey-house for safe keeping. As the bottom-board is covered with dead bees, I open the entrance wide, and with this paddle I scrape the dead bees out through the entrance. Yes, this queen is all right, and laying well. I will close the entrance again, as I do not allow them to have any larger entrance during the spring than I do in winter, which is 2

inches long by ¾ wide, while the summer entrance is 14 inches long by 1¼ wide.

Here is a queenless stock, but it is quite strong. We will remove three combs and clean them out, as we may find a light swarm with a queen that we can unite with these. We shall then have a good swarm out of the two poor ones. One good swarm is worth more than a dozen poor ones.

Here is a light stock with a good queen. We will remove all the unoccupied combs, which takes them all but three. I will now take these three combs and bees and set them in the queenless hive, there I will uncap this card of honey and place it between the two lots of bees. It will serve as a peace-maker. In a short time the queenless bees will discover that a queen is near, and will soon be making friends with her bees, and unite without further trouble to us.

Here we have a hive that the cows turned over when they broke in here. I presume they are all dead. No, there are a few bees—about a teacupful. The queen looks like a young one. Yes, the record says she was hatched last July, and from No. 42, one of my best breeding queens, so I will just cage her, as we may want her in some other yard, or I may have an order for a queen of this kind. There, you see I mark the cage No. 1, as this is the first queen caged, and in my book I say, "Cage 1, queen one year old, daughter of 42." Now, if I should send this queen to any one, or use her myself, I shall know *who* she is. As you see, I keep a record of all my queens, so that I know their age and pedigree.

Here we have another of those strong colonies full of bees and but little honey. Here, I remove two empty combs, and in their place I put in two cards of honey.

This finishes up this yard. You may get the horse while I take a look through the yard to see that we have not left combs out or neglected any thing.

You have now got an idea of what I want done the first time we look the bees over. I shall let you and Fred go to the Eaton yard to-morrow while Leslie goes to Ferrisburgh.

APRIL 20.

Now, boys, we will start out again to-day and see what the bees are doing. There is not much to do to them, but it is best to go around and see to them. One to a yard will be enough this time, as all there is to be done is to see to the stores and give more combs where needed. Should you find any robbing going on, contract the entrance to ¾, and put straw or hay in front of the hive, so the robbers will be obliged to crawl through it. That will discourage them as quick as any thing. Look to those we united, to see if the queens are all right. Should you find any that are queenless, and are strong in bees, give them a card of eggs and larvæ from some strong stock that has a pure queen.

MAY 10.

Well, boys, we have been confined to the shop for some time, and it will do us all good to get out among the bees. Our foundation is all made, and nearly all the sections filled with it. We can finish them rainy days. We shall now spend the most of our time in the apiaries, cleaning up and painting hives, etc.

I will take Will with me to-day, as he has not worked with me this spring. As the old bees have all disappeared, and nothing but young bees are in the hives, it is just the right time to clip the queens

that were not clipped last fall. Here we are, Will, at the Meack yard. These hives being all new, you will not have much painting to do this year, except to give the caps one coat. Now I will let you work while I look on and tell you how to do it. This is a good stock, with seven combs of brood. The record says this is a last year's queen, hence she is one year old. There she is! Now catch her by one wing with your left hand; that's right. Now just let her rest her feet on the lapel of your coat; that will stop her fluttering. Now clip off half of one wing. You see, it is a simple job. Let her go among the bees again. This swarm should have one more comb. Place it outside of the others. Some bee-men would tell you to spread the brood-nest and place it in the center; but I do not approve of it so early in the season. It will do to spread the brood during the honey-flow whenever we have occasion to give a colony empty comb. Next replace the sheets, both cotton and enamel cloth, and tuck down the cushion all around so as to keep them warm, as we now want to induce brood-rearing as much as possible, because the eggs that are laid now, and for the next 20 days, will produce the bees that will gather our surplus; hence we should do all we can to induce the queens to lay in every comb.

Here is a swarm that is not very strong—only four combs with brood in them. You may take out that best card of honey and uncap half the honey on one side, and place that side next to the bees. That is one way of feeding to stimulate brood-rearing; but you see in this case the queen is laying all the eggs the bees can care for, hence the trouble with this swarm is that they are short of bees, so we will go to a very strong colony and take out a few young bees and give to this colony. There, let me show you. This colony is so strong we can take out quite a few bees, and here is a card of nearly all hatching brood, which is also well covered with young bees. I will take it out and hold it in front of the hive—so—and with my knife-handle rap on the frame; that causes the old bees to fly off, leaving only the young bees. Now I place comb and bees in this light stock. Next I will go to that strong stock on the next row, and get a few more young bees on a comb, and this time shake the bees off in the light stock and return the comb. There, now you see I have helped this light stock wonderfully. It will now come up very fast, and perhaps the next time we are here we can give them another comb of brood and what young bees are adhering to it. By this method we shall be able to work up this colony to a good strong one by the time clover blooms, without damaging those from which we take the brood and young bees.

Here is a good colony, but you will find them queenless. How do I know? you ask. Well, I will tell you how I know. You observe the bees are more or less scattered all through the hive. They appear uneasy—restless—and you notice they make a peculiar mournful noise, and fluttering of their wings. Yes, there are queen-cells capped, and not an egg to be found anywhere.

Let's see: The record says she was two years old last summer, hence she would be three years old now. She has probably failed from exhaustion, or perhaps by accident. You may cut out all their queen-cells, and we will give them a card of eggs and larvæ from some of our breeding stocks and let them rear a few cells for us, as we may need

them the next time we are here. Now make a record of this. Let me show you how I do it. There, see:

queen; put in

May 10, 1889. No. 2. Q. P. I. eggs from No. 16. for Q. C. queen-cells.

Here is a colony that seems to be very strong. See how lively they are working, getting both pollen and honey. Yes, just as I expected, the hive is full of bees and brood in 9 combs. These bees are what are called leather-colored. They are almost brown. There is the queen; how dark she is, and how large and lively! Do not clip her, as she is just the kind Mr. Ira Barber likes; and as he has ordered a queen for breeding, I will send her to him next week. By that time it will be time to be thinking about getting queen-cells started, as we shall want a few early queens in this yard; therefore we will leave a record here in the honey-house, which will show that the queen from No. 63 is to be taken out for Mr. Barber, and the one in No. 28 for Mr. J. H. Larrabee.

When you come here next week you will simply have to see to the stores, because they are consuming honey very fast now, and it won't do to let them get short. You will also give those more comb that are not already full. A. E. MANUM.

Bristol, Vt.

To be continued.

Why, friend M., you make me feel as if it would be the nicest kind of fun to be one of your boys. I wonder if you are always as good-natured about it. Suppose some of them should forget and leave a lot of combs exposed, and they have a terrible time of robbing, and some of your best queens are lost. What would you do then? Your idea of having an enameled sheet to cover only half of the brood-chamber, so bees can take their choice, reminds me of my poultry-house, where the roosts at each end run out under an open shed. Just as soon as the weather becomes mild, the fowls walk along on the roosts out into the open shed; but when the nights are frosty and cold, they come into the warm inner apartment. I do like the idea of letting our bees and fowls—ay, and horses and cattle also—please themselves in regard to being outdoors or in. My brother in California went to the trouble of making good dry stables for his horses and cattle. His neighbors laughed at him. Thereupon he left the doors open so the animals could please themselves. As they all stayed outdoors in the rain in that warm climate, rather than go into their comfortable stables, he decided that the neighbors were right—that there was no particular need of stables in that locality.—Your plan of uniting a queenless colony with one weak in bees having a queen, is good. A colony that has been some time queenless will almost always take up with any bees that have a queen. But your comb of honey, with the cappings shaved off, I am pretty sure, from what experience I have had in a similar line, would make a pretty sure thing of pleasant relations among the strangers.—When you spoke about giving a comb of nearly hatching brood to a weak colony, I began to question the wisdom of your course; but when you spoke further about giving them a few more young bees from a *third* colony,

"There," said I, "that fixes it exactly." I often decide a colony to be queenless in just the way you describe, and sometimes I can tell by the actions of the bees around the entrance.—Very likely Ira Barber will be pleased with a dark-colored queen that produces leather-colored bees; but unless you know your man when you send out such a queen, you may get a letter from him that will make things lively. The queen would suit me, however, to a dot.

DEBT AND CREDIT.

OWE NO MAN ANY THING, BUT TO LOVE ONE ANOTHER. ROM. 13:8.

THE matter of doing business cash down, and no credits, has been discussed over and over again; and many large enterprises are conducted, or at least they profess to be, on the basis of cash in advance. The principal argument is, that no one can sell goods at as close margins, and give credit, even limited credit, as they can where they have the cash in hand, before the things leave the store. A good many of our supply-dealers, I believe, have adopted this plan; that is, they do not ship any goods until the cash is first at hand. Now, while this may be every one's privilege, and while it may be true that nobody has any right to find fault if a man decides to do business in this way (so as to give close margins), I do not think, or at least it does not seem to me, as if it were a Christianlike way of doing. One who has a real love and kindly feeling for his neighbors must be accommodating, within the bounds of reason. Selling goods on time, or lending money, if you choose, is a good deal like lending tools. The matter of lending tools has been discussed somewhat in these pages already; and I believe the final decision has been that one must lend his tools—at least to a *certain extent*, to be considered a good neighbor, or, if you choose, a Christian. A man who has built up a beautiful place, and who has succeeded in getting a beautiful farm, with all modern appliances, would, as a rule, be hated, rather than loved, in his own community, if he used every thing he owned, simply for self, and entirely shut down on any sort of accommodation to his neighbors. It is a good deal so in selling goods.

At one time in my life I became so much embarrassed with outstanding accounts that could not be collected, that I decided I would start in business again, and have it all cash down or cash in advance. Two obstacles stood in the way of carrying this out. One was, that it seemed very hard and unfriendly to refuse a little accommodation to those who had for a long time paid cash in advance, and with whom friendly acquaintance had sprung up. Another thing, when there came a boom in business we were oftentimes unable to send the goods as promptly as our customers had sent the cash. We would not trust them 24 hours, but they intrusted us with *their money*, and even then did not get their goods for days and may be *weeks*. Is this fair or Christian-like? Sure-

ly not. At other times, somebody sent money for goods without knowing just what they would cost. Now, if a man sends \$9.00 for something that is worth \$10.00, is it right to hold his \$9.00 and keep him waiting until he sends the other dollar? To be sure, it is not. If, then, it is the duty of a Christian to give credit to a certain extent, who should have credit, and who should not? Here is where the great trouble comes in. To send out goods right and left, to everybody who asks for them, or who makes promises, would be the height of folly. Many of our young friends who have gone into the supply-business have discovered this to their sorrow. In the bee-business, in the small-fruit business, in this whole business of raising crops, it has been well said that it is more work, as a rule, to sell the product and *get the money* than it is to raise the crop. Raising the crop is only one part of the business; and the great trouble is, *whom* shall we trust, and *how* shall we trust? The thought that perhaps I might be able to help some of the friends who are studying on this problem has moved me to write this paper. In our business, looking after accounts, and deciding whom to trust and whom not to trust, has been the most wearing and fatiguing, perhaps, of any one branch of the business. It is this branch of our business that has broken down my health, perhaps, more than any other one thing; and when we finally decided that I must delegate this serious and difficult matter to somebody else, the question came up as to who should undertake it. We finally decided that our oldest and most experienced book-keeper should undertake this, under the advice of Mr. Calvert and myself, when the case seemed a difficult one to decide. As a matter of course, when I let go of the "wheel," if I may use the expression, and intrusted it to somebody else, complaints came in, and it became necessary to frame a set of rules for the guidance of the book-keepers. These rules were those that had been deduced from long experience; and after they were framed they were tested. When we were forced to conclude that we had trusted somebody unwisely, the book-keepers were asked to go back and see *why* this man was deemed worthy of credit; and if our rules were unwisely framed, they were remodelled.

To get the matter before us, let us suppose, as I have done once before, that obtaining credit is like going to your neighbor and borrowing a wheelbarrow. You commence:

"Mr. A, I am a little ashamed to come on such an errand; but just now things are in such a shape that the use of your new Daisy wheelbarrow for half a day would save the price of a good man. Now, if you prefer not to lend it, say so without any hesitation, and I assure you there will be no unkind feelings; or if you can not spare it, that ends the matter."

In the above transaction the neighbor has shown a fair, manly, Christian spirit; and if Mr. A decides he can not spare the wheelbarrow, or decides that he can not lend it

at all, it is his right, and neighbor B should go home pleasantly without it, if his neighbor so decides. It is true, that B might, as he goes off home without the barrow, say to himself:

"Well, I think he showed a mean, stingy spirit. If he does not know *me* well enough to know that I would return his wheelbarrow exactly at the time I promised, and entirely unharmed, he can keep it till it wears out, and I will never ask him for it again."

B *might* say this, but it would be a wrong, unchristianlike spirit if he did say it. Now, let us suppose that it is *money* that B wanted, instead of a wheelbarrow. Ought the case to be materially different? Mr. B agrees to pay for the *use* of the barrow. If he asks for money to be kept for any length of time, he ought also to be just as willing and just as anxious to pay for the use of the money as to pay for the use of the wheelbarrow. You may say that money is not injured by being loaned. We have found to our sorrow, however, that it *is* often "injured." Sometimes it takes quite a part of the principal to get it back again, and a deal of hard, wearing, and fatiguing work. Sometimes it never comes back. How many of you can testify to this? Suppose, now, the wheelbarrow came back all right, but the owner has charged an exorbitant price for it for just half a day. In this case the fault is on both sides. There should have been a plain understanding before the wheelbarrow left its owner, as to what the rent should be. You may say it looks little and small; but, my friends, it does not look nearly so little and small as it does to have a long standing quarrel because there was no understanding at the outset. During my recent travels I felt obliged to decide not to stop at a hotel until I had first asked what the charges were. Some of you may think this looks little and small. I can not help it if it does. After I knew what I was to pay, I could be friendly and neighborly with the landlord, and sometimes with the whole family, without any fear they might take advantage of my good nature.

We now come to another difficult matter. Suppose that B finds it is going to require a *whole* day instead of half a day. Must he go half a mile in order to get permission to keep it half a day longer? By no means. Send the smallest boy over to A's, with a scrap of paper containing something like this:

"Neighbor A, it would be a very great accommodation indeed if I could keep your wheelbarrow half a day longer, and on the same terms. Will it discommode you if I do so?"

If neighbor A scratches at the bottom of the same paper, "Not in the least," it is just as fair as if it were returned at the time promised. The same thing applies to your money. There is nothing out of the way, or injurious to your standing or credit in keeping money longer than the agreed time, providing you get *permission* of your neighbor to keep it. In fact, you may get the time of payment extended seven times, or seventy times seven, for aught I know, providing you make an arrangement that is

agreeable to the neighbor who has loaned it to you. To neglect to do any thing about it, or to write any thing at all, however, when the agreed time comes around, is damaging to your credit, and it must be damaging to any one's conscience. It is not as bad, it is true, to say when the time comes around, "Neighbor A, I have not got the money, and can not get it just now, and you will have to give me more time;" but it seems to me this is not quite the thing after all. The money belongs to your neighbor, just as the wheelbarrow belongs to him, and you have not much more right to keep it without permission than you have to take property without permission. You may not agree with me in regard to this; but if you want your name to be A No. 1, and if you want all business men to spring with alacrity to ship your goods, whether you send the money with your order or not, you must *build up a reputation* for promptness and reliability.* If you want to do this, be sure that some sort of an arrangement is always made whereby payment can be extended, and do this in ample time before the money is due. Most business men are willing, so far as my experience goes, to grant almost any thing, provided they are *notified beforehand*. Another thing that will help you greatly is to be on hand promptly with the *interest*, if you can not pay the *principal*. The record of our ledgers shows that the man who pays his interest promptly will sooner or later pay the principal.† The man who complains in regard to the amount of interest, or who maintains that he should not pay *any* interest, or who *neglects or refuses* to pay interest, usually never pays any thing if he can get out of it. Now, I do not say this because I have a selfish motive in it, but because I think it will be helpful to you all. Broken promises in paying debts are almost as demoralizing as broken promises in signing the pledge. One gets conscience-hardened in a little time, if that is the right term. First, he persuades himself that the interest is altogether more than it ought to be. The next is to decide that he ought not to pay any interest at all; and finally he unblushingly repudiates all obligation, and refuses to pay either interest or principal, and goes along through life *trying* to be happy, and *trying* to quell the remorse of a guilty conscience. To come back to the wheelbarrow again:

Suppose that B should keep the wheelbarrow without saying a word until A could not get along with his work any longer, and went after it. Now, our ledger shows abundance of instances where the result is something like this: First, B says it will cost him the price of the wheelbarrow to have to return it as he promised, therefore he kept right on using it without saying any thing. Again, he says, "I got through with it just as I agreed; but neighbor C wanted it, and he promised to get it around

* "A good name is rather to be chosen than great riches."—PROV. 22:1.

† Our ledgers also show that, as a rule, he who answers promptly every statement in regard to his indebtedness, usually pays all up, sooner or later.

to your place so quickly you would never miss it at all. I am not in the least to blame. The fault is all on C's part." Quite a good many stop right here, and stoutly insist that they are in no way at fault, forgetting, apparently, that the barrow was loaned to *them* and to nobody else, and that they alone are *responsible* for its return or for its value. Again, B will say, "The wheelbarrow was in my barn, and the barn was burned up. Surely you can not blame me for it, for the barn was struck by lightning." Sometimes B adds, "As I lost the whole barn, with all there was in it, you surely can bear the loss of the wheelbarrow." Perhaps A suggests that, as B has had troubles and misfortunes, he will not think of crowding him now, but it seems to him that some time in the future, when B has caught up from the loss of the barn, A thinks he ought to have another wheelbarrow. Now, I have known B to say, a great many times, before they got through, "I wish you had never loaned me the wheelbarrow at all. I never used it a bit, and it did not do me a particle of good."

Well, suppose A should say to himself (I hope he is a gentleman, and will not say it out loud), "I do believe neighbor B is right. It *would* have been better for both of us if I had refused to lend my bright new wheelbarrow; and I declare, it has so often resulted in just about this way, when I have *tried* to accommodate and to do a *friendly* act by loaning tools that it has been no accommodation, and I have just made enemies of my neighbors, I believe I will never lend any more tools." Dear friends, the record of our ledgers has so often shown, in plain black and white, that loaning a man money (or what amounts to the same thing, letting him have goods on time) has only resulted in getting *him* into trouble without doing him a particle of good, that I have been tempted to decide we had better stop it altogether. But a better spirit suggests, "No, my friend, do not stop it altogether, but be more careful in the future." Be careful that the accommodation you feel inclined to grant is not going to bring trouble on both sides.

Before dropping this point I want to say that, of late, quite a few have censured me rather severely for having trusted them. Some of them have been so unkind as to say that it was only a sharp plan of ours to get them into a trap where they could not help themselves. This has come up a good many times when I have urged my right to interest as well as principal. We simply ask for the interest we are obliged to pay—nothing more. When a good many friends find themselves unable to pay at the time they promised, or expected to, I have often written back, "My friend, we are in great need of the money, and really must have it; but to relieve you from your cramped position, as you have stated it to me, I will, if you wish, go to our bank and borrow the money for our own needs, and you may, if you choose, pay me exactly the interest I have to pay at the bank." Now, it is true that a great many—yes, by far the larger part—have written me letters of earnest

thanks for relieving them from the necessity of going out to borrow money, and they have in due time paid interest and principal, saying they would never forget the kindness I had done them. The larger part have done this; but still *quite a good many* have failed to pay me back, even after I have tried to help them, and have talked hard besides.

Now, then, if we are to do a credit business, whom shall we trust? Dear friends, your nearest bank will answer the question for you, and in a plain, common-sense way. Some of you, I know, feel bitter toward our banking institutions, and call them "moneyed aristocrats," and such like things; but, my friends, this is all wrong. If you do not like banks, it is your privilege not to patronize them. But if you do patronize them, and they accommodate you according to business rules, treat them as friends and neighbors. You may say that banks are expensive; but it is your privilege and duty to give up the purchase of things you can not well afford, without reflections on your fellow-men or reflections on the great Father in heaven for giving you only a *humble* station. Do you ask what the conditions are for accommodation at the bank? Well, I presume they will be something like this:

The cashier will say, "My friend, where do you live, and what property do you own?"

If you reply that you own a farm or a house and lot, or a store, the next question is, "What do you consider your property worth, and what incumbrance has it in the way of mortgages, etc.?"

If your property is of a kind likely to burn up, you will be asked if it is insured; and if insured, the summing-up will be, "If you should get sick, or die, or if your house should burn up, or if a cyclone or flood should come upon you, are you in such shape that you would still be able to pay back this money?"

If you are unacquainted with the cashier, he will ask you to call in some mutual acquaintance—somebody to prove your identity, to attest to the truthfulness of your statement—the postmaster, the station agent, or the storekeeper, or people who are known to the banker, and who know almost everybody in the vicinity. Now, if you have had difficulty with any of the above three, or if you owe them money and can't pay it, I shall have to admit that your chances are slim for getting the accommodation you ask. And here we see how important it is that you live according to the spirit of the text at the head of this talk. If you have not done so, you have no right to complain.

Now, suppose you do not own any property at all—you are renting a place. In that case the cashier would be foolish if he gave you credit unless you brought forward somebody known to him—some man of means to sign a note with you to go your security. A great many of you will say right here, "I am not going to ask *anybody* to sign with me." Good! A. I. Root is one of that very sort. But, my friend, if you say you are not going to furnish a signer, you must not

complain if you can not get the accommodation you ask for. You must either get a signer, or accumulate property enough to make it easy for your *wife* to pay your debts if you die suddenly. If you can not do one of the two above things, it seems to me if you are a good Christian you ought not to complain because the world does not see fit to give you credit.

The rules laid down for our book-keeper are just in accordance with the above, only we are a little more liberal than banks in general. This book-keeper, of many years' experience, is a Christian woman of good judgment, and one who has a kindly love for all humanity. In this very work of which I have told you, it is her constant end and aim to decide all these matters in a Christianlike way. Mr. Calvert, her aid and adviser, is also a thorough-working Christian—a man who asks God day by day to help him to love his neighbor as himself. Perhaps they make mistakes. They do not, of course, know all the old friends of GLEANINGS just as I do; but I assure you that we all stand ready to correct any mistake at once, as soon as we are informed of it. I told you we were more liberal than the banks. It is this way: We have quite a few customers who are not men of property—who have very little indeed to fall back on in case of sickness, death, fire, cyclones, floods, etc.; but this class have gained credit by being *prompt* and *careful* about paying all *small* balances. They are often quoted, "Has always paid exactly according to promise," and I tell you this one simple record goes a great way. The man who has always been "faithful in small things," certainly will be faithful in larger ones; but of late a good many facts have come to light, showing that it is *sometimes* a mistake and an unkindness to even these friends to give them *too large* a credit. Very often I pencil on letters, "Why was this man trusted?" The letter comes back to my special box, marked something like this: "He was always prompt, and fully up to promise in small amounts, say from five cents up to five dollars, until we decided to trust him \$25.00, then he had bad luck, and wrote us once or twice about his misfortunes, and now we can't get any answer from him at all." Now, friends, the fault was ours. To be kind and helpful to this individual, our duty was to tell him that we did not feel justified in trusting him to so large an amount as \$25.00, from what we could learn of him, even though his past record had been excellent. Very likely he would have been greatly hurt and pained on receiving this answer; but it would have been much better for all parties, just as it was with the wheelbarrow, had neighbor A stated kindly but firmly that he preferred not to lend it; and, my friend, if you know the neighbor who comes to borrow your wheelbarrow is notorious for breaking and injuring and keeping every tool he gets hold of, I think the kindest act you can do is to tell him pleasantly, that, if he will excuse you, you would rather not lend it.

Some years ago I wanted accommodation at our bank. The cashier questioned me,

and finally told me he did not see how they could consistently let me have what I wanted, especially as I objected to giving a signer. I urged, however, and he finally said that perhaps they could get around their rules in some way. After a little reflection I decided, however, and spoke out something as follows:

"Look, here, my friend, I do not want to be any exception to your regular rules. I want just as good terms as you offer to anybody else, but no better. If your rules are as you have stated, I prefer to abide by them;" and I went without the money I wanted, and felt then a good deal happier, and have ever since. And you too, my friend, will feel better and happier and *manlier* to abide by the established rules than to beg to be an exception because you are a "near neighbor," or an "old friend," or something of that sort. I am sure a little foolish pride often comes in here. Men who are worth their thousands do not feel hurt, nor object to being questioned; and I believe it is generally laid down that the man who flares up and gets offended, or shows anger because he is asked to submit to the regular established business customs in the way of debt and credit, is, as a rule, found to be unworthy of *any* credit.

Some years ago a good friend of mine, who is in the banking business, wrote me a kind letter. After excusing himself for taking the liberty, he said he would like to urge upon me the importance of keeping a little more ready cash ahead, so that I might not be so often in cramped places. He said it injured my standing, not only as a man of *business*, but also my reputation as a *Christian*, to have the world see that I was cramped or pinched, or to be inquiring here and there for money. Now, this friend is not a Christian; but from a business standpoint he saw that I was dishonoring Christ Jesus the Savior by continually paying out my money as fast as I got it, or a *little faster*, so that I was every little while crowded. I thanked him, and told him that I would try to show him that his advice was not thrown away. In a little time I had quite a sum of money in the bank, saved up for a "rainy day," as the expression goes; and during that summer I was enabled to take advantage of many opportunities in the way of purchases, that I had never been able to manage before; and I resolved then that I would never more dishonor the Master by want of ordinary business prudence; and let me tell you, my friends, that, although we like to do business, and like to sell you goods, I would urge and implore you, not only for your *own* good and happiness, but for the sake of *Christ Jesus*, not to be in such haste to make such investments that you *cramp* and cripple *yourself*. Read over again the little clause in the fore part of our price list, about borrowing money to buy goods.

A few have objected to 8 per cent interest. Some have said they did not think we were *obliged* to pay it; and a few have said that we are not very smart in business or we would *not* pay 8 per cent interest. My friends, we can get money at 6 per cent by

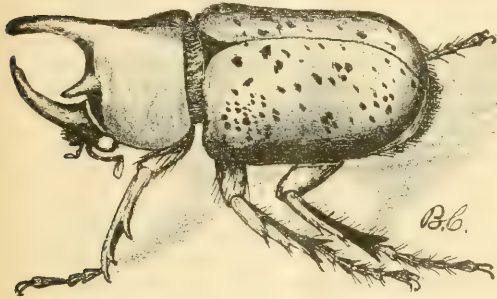
keeping it a year or more, and by furnishing a signer. As we do not get it at that rate at present otherwise, I prefer to pay the 8 per cent, especially because, by so doing, I can better fulfill the command of the little text I started out with—"Owe no man any thing, but to love one another."

GREAT RHINOCEROS BEETLE.

NOT AN ENEMY, AFTER ALL.

I HAVE the following letter from E. Wetherold, Bryantown, Md.:

Respected Friend:—I send you a beetle which is a curiosity to me, as I have never seen one like it before. I wish you would describe, illustrate, and give a sketch of its mode of life and habits for the readers of GLEANINGS. I am sure it would interest all. It was found in a decayed locust-tree which has been gradually dying for some years. Are these insects the cause of the death and decay of the trees? Locusts in this State are seriously injured by what are called borers. I have never seen these borers, but supposed them to be quite different from this beetle.



GREAT RHINOCEROS BEETLE, NATURAL SIZE.

This beetle (see cut) is one of our most formidable-looking insects. It is known as the great rhinoceros beetle (*Dinastes titys*, Linn.). Its form, size, and markings are well shown in the excellent figure which I inclose. It is greenish in color, often with a yellowish tinge, with black dots. The ends of the horns and the legs are black. It is reported that some of them are uniformly brown, like our May beetles. The lower horn can be moved so that, as it comes against the upper, it might form quite a formidable weapon of offense and defense. On each side of the pro-thorax is a short horn, one of which shows in the figure. Indeed, though perfectly harmless it is about as startling in its appearance as any insect I know of. It is a Southern species, and has been found from Maryland to Missouri, in southern Indiana, and to the Gulf. The grubs feed on decaying wood, and so this one does not destroy the Maryland locusts. The beautiful locust-borer, a trim, long-horned beetle, yellow and black in color, is the real enemy, and it is a serious one all over the United States. When the trees decay from the attack of the locust-borers, then this rhinoceros beetle finds in it a suitable nidus for its eggs. Thus it is not strange that our friend Mr. Wetherold found this one as he did. The female looks like the male, but has only a tubercle in place of the long horn. I should be very grateful if some Southern friend would send me a female. I am very glad to receive all such insects, and will gladly describe them when sent to me.

A. J. Cook.

Agricultural College, Mich.

THE SIZE OF BROOD-CHAMBER.

DADANT STRONGLY IN FAVOR OF LARGE-SIZED FRAMES.

IN the answers on the number of brood-frames in the hives, page 224, we give the larger number, while Messrs. Doolittle, Hasty, and, I could add, Gravenhorst, as per his article, page 210, use the smallest-sized hives. Let me tell how I came to the conclusion that large frames and capacious hives give better results than small ones. When I arrived in this country, 26 years ago, I had never seen shallow hives; so my first hives were made of the same size as the Debeauvoys, $12\frac{1}{2} \times 14$, which was about the same as the American, 9 frames to the hive. A little later I tried the Quinby hanging frame; then enlarged both kinds, to place at the sides glassed surplus boxes, as per the idea of Mr. Jasper Hazen. But seeing that bees were reluctant to work in the side boxes I replaced them with frames. My American was thus enlarged to 14 frames, and my Quinby to 13. But as my best queens had too much room in these Quinby frames, I reduced them to nine or ten, with one or two partition-boards besides. Yet as I had begun to raise bees for sale, and as most of my customers wanted them in Langstroth ten-frame hives, I had to comply with their preferences, and introduced this size in my apiaries, being thus enabled to experiment on three different kinds of hives. I had begun, also, to raise Italian queens for sale, using at first small nuclei with combs 5×5 inches. But as I had to cut my combs to give brood or honey to these nuclei, I got the idea of dividing a few of my large Quinby frames in two equal parts, which could be taken apart or reunited at once. A small engraving of this device appeared in GLEANINGS for March, 1874, page 28. I made 25 such nuclei, every one of 11 half Quinby frames capacity. I used these nuclei with the best results as long as I raised queens for sale. It was an easy matter to keep them strong and well provisioned by borrowing from those of my hives in which I had introduced some of these divisible frames.

In the latter part of summer, as fast as one of these nuclei was deprived of its queen, its bees were given to another, and so on till the eight or ten left had a sufficient number of bees for a good wintering. Yet, while these small hives wintered perfectly, I have been unable to build them up in spring to the strength of my large hives; for at the beginning of June, while my Quinby had, on an average, seven or eight combs full of brood, my nuclei had hardly brood on eight or nine half-combs.

Having narrated these facts lately in the *Revue Internationale*, of February, 1889, its editor, Mr. Bertrand, added in note:

"It is a similar observation, made about ten years ago, which has definitively convinced us of the superiority of the large frames. Supposing that the keeper of one of our apiaries desired to have bees of his own, we gave him a swarm and a few hives, known under the name of Vaudoises, and containing 13 frames 11×10 inches. This apiary of our bee-keeper, placed on our own ground, side by side with our own bees, increased in number with time, but these small Vaudoises have never equaled, neither in population nor in product, our large layers" (14 to 16 frames, of the American size).

There is in the A B C a very good explanation, with engravings, of the causes why bees raise less brood in the Gallup than in the Langstroth combs, so we can easily understand why Messrs. Doolittle and Gravenhorst think that a good queen can not lay more than 2200 eggs daily, while I have often noticed some laying over 4000 eggs for weeks.

The opinion of Berlepsch on this matter, as given by Mr. Gravenhorst, is of very small account, for the frames of the Berlepsch hive are of about the same size as those of Mr. Gravenhorst. I may add, that a great many comparisons have been made in Europe between the 11-Quinby-frame hives and the Berlepsch, and the results were always wonderfully in favor of the large Quinby; in fact, they showed from two to three times as much honey per colony in the Quinby, in the same apiaries. No doubt Mr. W. P. Root, your translator, has noticed these reports in the *Revue Internationale* of Switzerland, and in the *Apicoltore* of Milan, Italy. The journal of the Marches, Italy, *I Api e i Fiori* (The Bees and the Flowers), was founded in view of spreading the wide hive under the name of *arnia marchigiana*. But some bee-keepers, in this country, object to large hives for comb honey. My first comparisons were begun about 23 years ago. At that time I used slatted honey-boards, on which my glassed honey-boxes were placed; but after noticing that bees were slow to ascend in the boxes, I dispensed with honey-boards by inventing T supports made of plasterers' laths, under the edge of which I nailed tin strips above, 2 inches wide, to support my boxes directly above the brood-frames.

When — twenty years ago — Adair invented his sectional honey-box he sent me one for a pattern, and I discarded the square glassed boxes. I had an extractor; but as the people were reluctant to buy extracted honey I produced more especially comb honey till a part of the prejudice was overcome. The size of my hives was far from being a hindrance, for I took sometimes 150 lbs. of spring comb honey from my best colonies, although our spring crop is gathered on the white clover exclusively, since we have very few lindens around here.

As our queens have room to lay from 60,000 to 80,000 eggs in 21 days, the population is so large that we do not need to contract the brood-chamber, the workers being too happy to find their room enlarged. We have had swarms containing 60,000 bees or more, if we estimate them by their weight, while Mr. Gravenhorst speaks of uniting two of his swarms to get 44,000 bees.

Our experiments are still continuing on the three kinds—11-frame Quinby, 10-frame Langstroth, and 14-frame American; not on two or three of each kind, but on 50 or more. When we extract we begin with one kind; and when it is done we figure the result, dividing it by the number of colonies. We do the same for the other kind, placed side by side in the same apiary. Then when we say that our large Quinby gives us better results we know there is no mistake. To sum up the above we will say that, according to our quarter-century's experience—

1. In a large hive the queen, in spring, begins to lay earlier, and lays more than in a small one, since the population wintered is larger.

2. At the beginning of the spring crop, the number of bees is so large that, as soon as the surplus

boxes are placed, the bees ascend into them without needing contraction.

3. As the queen finds sufficient room to lay, she goes upstairs so seldom that we dispense with queen-excluders.

4. If the boxes are furnished with combs and comb foundation, and more room is added before being needed, all swarming will be prevented, except when the bees replace their queens during the honey crop. As we do not get more than two or three per cent of swarms, we dispense with watching our bees closely.

5. As bees swarm but little in well conducted large hives, not only the time and work of the bee-keeper are spared, but the day of swarming is more profitably used by bees in going to the fields and getting, according to circumstances, from 5 to 20 lbs. more honey per colony.

6. The few swarms obtained are so large that they need hives of full capacity, and one or two surplus boxes, in which we sometimes harvested 100 lbs. of honey or more.

7. As all the queens have a sufficient space to lay to their utmost capacity, it is an easy matter to breed from the most prolific, prolificness being the first qualification of a good queen.

8. As we leave about all the honey stored in the brood-chamber, our bees have some spring honey left for winter; and as this honey is of the best quality they winter better on it, while we dispense with the work of feeding.

9. As the laying of our queen is never restricted, her large population has the best chances to reach spring strong and healthy.

We desire to add, that none of the bee-keepers who oppose large hives have ever tried them, and act under the influence of preconceived ideas; while we speak with the authority that a long experience can give, and are backed by hundreds of European and American bee-keepers who have made the same comparisons that we did.

Hamilton, Ill., April, 1889.

CHAS. DADANT.

There, friends, we have a valuable article. Now, although it should not seem prudent for us all to adopt the large Quinby frame, I do think it behooves us to think well before we choose a smaller frame than the old standard Langstroth. I have for years been well satisfied that we could raise more bees with a frame larger than Langstroth's, for the reasons that Dadant has given; but when other things are taken into consideration, especially the matter of securing comb honey, and getting sections close to the heart of the brood-nest, I think I would use a frame a little shallower than would otherwise be needed; and then when we reflect that most of us have the Langstroth frame already, it seems to me very good policy to let well enough alone. By the way, one can not well avoid the conclusion that friend Dadant has some extra-prolific queens, especially those that lay 4000 eggs in 24 hours, and keep it up for weeks. I do not know where he gets his stock to raise queens from at present; but I am inclined to think that it was imported from Italy, not very long ago. Will he please tell us about it? I presume that it will, of course, be of no use to have such large hives unless we also have queens to match.

MOVING BEES DURING THE SWARMING SEASON.

ALSO SOMETHING ABOUT SETTING BEES ON DIFFERENT STANDS WHEN TAKEN FROM THE CELLAR.

On page 165 friend Daniels speaks about moving bees in and out of cellars like so many potato barrels "and not one word about losing bees in all the years I have been reading bee-papers." Why, friend D., unless I'm very much mistaken there has been a good deal said about it, and I think that the majority of bee-keepers insist that, when taken out of the cellar, each hive must be put on the stand it occupied before going into the cellar. Certainly I have no recollection of any case where bees were taken out for a fly, put back in the cellar again, and then, when taken out next time, no care taken to put them on the same stands.

In all cases it is entirely safe to put a colony back on its own stand. Sometimes, however, it is not convenient. Take my own case. In my cellars are now bees from four apiaries. Without much trouble I could put all that belong in the home apiary on their own stands. Even then if I had nothing but these, and if a goodly number should die in wintering, I believe I should rather have the survivors fill out the rows solid as far as they might go, rather than have vacancies. But those colonies which come from the out-apiaries can not be put back where they stood last fall without a great deal of trouble. You see, it is not easy to have regular places for them for the few days in fall and spring that they stand near the cellar. But after those bees have been in the cellar about five months they don't seem to pay any attention to their old location. I set them where it happens to suit best, without paying any regard to their previous location.

Before going any further I want to advise you, if you are a beginner, to set it down as a rule, that, if you don't want to lose bees, you must be careful not to change their location. You haven't a great many colonies as yet, and you can easily place them in spring where they stood the previous fall. Experiment somewhat gingerly to see what *your* bees will do with *your* management before you risk putting many on stands new to them.

Now I may go on to say that, in my own case, even if they do mix up some I don't know that it is any loss, although I should rather have each bee stay in its own hive. If I should move bees as does friend France (see page 81) I should rather expect trouble; still, I can readily believe that he gets along all right with it. But as to having a cluster cling to the old stand when put on a new stand in spring, *I never had a single case*. I can imagine that, if I had very few colonies, or only a single colony, and should give it a stand in the spring, a few rods from the old place, a large number of the bees *might* gather at the old stand and keep up such a commotion there as not to hear the hum of the bees at the hive, and so cling to the old stand. But if a large number of colonies were in easy hearing I have little fear but that the old stand would be speedily deserted, and the bees would go into hives most likely not their own; for on first being taken from the cellar, bees of different colonies seem to mix peaceably. Another thing: If, during the rush of the honey-flow, a colony with no others near it should be moved half a mile, or, indeed, any

distance within the scope of its previous flight, I should expect to see a cluster at the old stand. From the headlong way in which a bee rushes from the hive in a bee-line after a load of honey, one can easily believe that it pays little attention to its surroundings till it is some distance away. Now, suppose this bee should be taken to a new location two miles away. On going out to-morrow morning it strikes within a few rods upon a linden-tree upon which it had been at work the previous day. Even if this tree is two miles from its old home, it knows well the way back, and it doesn't know the way to its new location. Is it not the most natural thing for it to fly straight back to its old home? By the way, is not this some proof that bees in general do not fly so very far, for I think it is generally understood that bees moved in the harvest two miles from home, will never return? If that distance was within the range of their previous flight, would they not return?

Now, upon coming back to the old stand I should expect to see a large cluster remain there. But if another colony were within a very few feet, or a number of colonies within a very few rods, I should hardly expect to see a single bee remain for any length of time on the old stand. I have often removed a colony from its stand in the middle of the harvest, and I don't believe a colony thus moved ever lost a dozen bees, or, rather, that a dozen of such bees were ever *entirely* lost, for the whole field force will fail to find the hive when thus moved; but they will peaceably unite, when loaded with honey, with one of the nearest colonies.

On page 81 you say, friend Root, "When they are moved so far that they do not meet familiar objects on their first flight, of course they will all go back to the hive." Now, I am a little skeptical about that, unless some modifying words are used. How far will a bee in a strange place dart from its hive before it recognizes that there are no familiar objects? I wish that some one who can, would answer that question. I hardly think it awakens fully to the situation till it is at least a number of feet from the hive. When it does think about it, it doesn't know where to go; and if other hives are standing near, will it not be just as likely to go to one of them? There is likely to be an unusual commotion at the hive which has been moved, and this will probably prevent many from going wrong, but I have for a long time had some suspicion that when I moved bees to an out-apiary, there was more or less mixing up. C. C. MILLER.

Marengo, Ill.

Friend M., I am well aware that bees do mix up a great deal from one hive to the other; and especially is this the case when they are first taken from the cellar. We can tell exactly how much they mix by having a part of our apiary Italians and the other part pure blacks. We shall then find black bees scattered among the Italians, and Italians scattered among the blacks. In regard to your point about moving, so that they do not meet familiar objects, the first colony of bees I ever owned was very carefully watched. I was down before the hive in the morning before a bee had gone out, and I have repeatedly watched bees from colonies that had been brought in the night before; that is, I would sit down by the hive and see how the inmates behaved when they

first discovered they were in a strange neighborhood. So far as I can recollect, they always took their points. I do not remember to have seen a bee under such circumstances go right off to the fields without noticing that the surroundings were different, and I have always supposed that the minute they discover they are in a strange neighborhood they take their bearings as bees do from a newly hived swarm. In purchasing bees from our neighbor Rice, about 10 miles away, I often watch them when the wire cloth is taken from the entrance. Under such circumstances they come out with a rush—a great lot of them, while others stand humming at the entrance, and, as a general thing, I think almost every bee very soon, and without going a great distance, goes back to the hive he came from. Pretty soon they sally out for another reconnaissance, and within a couple of hours some of them will return with pollen. Now, if neighbor Rice lived within half a mile I should expect these pollen-gatherers to go to their old home with their loads; but so far as I can recollect, where they are moved a mile there is not often much going back; a mile and a half, almost none of it; and when you come to two miles, I never saw a bee go back at all. When I brought the first Italians into Medina County I watched this matter very thoroughly. I do not believe that *our bees often fly more than two miles*. In the last issue, p. 308, J. F. Whitmore had something to say on the same subject.

FROM SAN DIEGO TO DEHESA.

A RIDE THROUGH THE COUNTRY.

FRIEND ROOT:—At 6 o'clock to-morrow morning you will take a seat in my buggy, behind my messenger horse John. We will journey to the east, for Dehesa is 25 miles away, among the mountains, 1200 ft. above sea-level. Now, I am to do most of the talking; first, because I am older; second, because I know more of the country than you do. There, we have left the city behind; and at a glance over our shoulder we can see a thousand little clouds of smoke, rising from so many chimneys, where the busy wives are preparing breakfast. Look just over those little clouds of smoke, and you see San Diego Bay. How peaceful and smooth it is! and when you open your eye a little wider you see Coronado, with its grand and imposing hotel (the largest in the world).

But here we are, three miles out of town, and what have we? Only a gravelly soil; low, gently sloping hills, covered with brush. Why is this land in this state of nature? Is it not good for any thing? Yes, nature has bestowed upon this soil all that is necessary to raise good grain, fruit, berries, vegetables, nuts, and flowers; in fact, every thing that goes to make a prosperous and happy home. Only one thing is lacking—*water*. Water is king in this country. But, wait! You shall see, as we go further on, the source whence all this land shall drink, whence all the dense population that shall build for themselves homes upon this self-same soil in this delightful climate, where old Jack Frost seldom if ever comes, and then only to nip the

tenderest flower or shrub. Go on, John; let's jog along and show Mr. Root, at "five miles away."

Here we are. This is not a bad-looking place on our right; fine house, fine barn, fine out-buildings, and it looks nestled snug in that little canyon; the henry—*that* looks a good deal like home, does it not? Look to the left, and you see the orange-orchard. Yes, the trees are small. You were not with me one short year ago when John and I traveled along here, much as we are doing now. Well, then there was not a blow struck, the brush was waving in the morning breeze, the jack rabbit sported on hillside and valley. You ask, "How comes this transformation in one short year?" I tell you, money and Water (put the capital for Water, for 'tis king). This man was more fortunate, perhaps, than all would be, for he struck a big flow at a reasonable depth; and with his 14-foot windmill he hoists it to his tank, thence to the thirsty earth about his ground and trees. But we must hurry on.

Now you see the small house on the left; that is the six-mile house, where Mr. Harbison used to have his first out-apiary, now sold out and gone, for the bees must go further back. You see but little change in the face of the country. The same undulating hills and valleys, the same sandy soil, and brush and jack rabbits, but no houses; no, none. Two miles more, and here is the eight-mile house where the greatest stock in trade is bad whisky. Let's hurry-up, John, and get out of this locality, for we are coming into America. Every turn of the wheels brings us into a higher altitude; and now if you will put on your glasses, over that joint at the left you will see an oasis in this wilderness of brush and low hills and gravelly soil. Here is home again, with its comforts and two wind-mills. We are now 700 feet above San Diego Bay, and within a stone's throw of the first crossing of the Cuyamaca & Eastern R. R. This word "Cuyamaca" would be spelled and pronounced in English (Quemahka). This road, that is now building as fast as men and money can push it through, will be one more through line from the great East to the western shore; and the next time you visit San Diego you will be hurried along at 40 miles an hour over the very ground over which we now sit.

We have left the sage brush behind for a time, and this newly turned-up soil on our right tells of culture, thrift, progress, and the go-ahead spirit of the true *American*. Do you see that streak of newly turned-up soil? Look at its meandering course, over hill and valley, now to the right, now to the left, but still on and on to the sea. That is the path where lies hidden the great water-pipe from the San Diego flume (but you shall hear more of that when we get to it). The summit! here we are, 11 miles from the city, and 900 feet up. You see no more brush, but cultivated fields; and if you will hold your breath for a little while, John will let us down to the first crossing of the great flume and the second of the Cuyamaca. Here they are together. While we contemplate the beauty of this body of fresh mountain water, flowing so peacefully beneath us, we can not but admire the skill and energy of man that has hollowed out and cut this path through the mountain-side for the locomotive, for the wagon-road passes over them both at this point. But on a few rods, and we will put on the brake, while you feast your eyes upon the scene below. This is the El Cajon Valley. "Cajon" in

English would be spelled *Cahone*. Now what do you see? You have come 14 miles to this lovely valley. Spread out before you are thousands upon thousands of acres of fruit and vines—a real paradise—nothing fanciful about it, but real. Here you find a soil rich, deep, and productive—no hillsides here, no grade, no brush, nor jack rabbits. Beautiful, is it not? Does man live here? Yes, 'tis the hand of man that has turned this into real beauty. Get-up, John! Past all this semi-tropical beauty we will wend our way to the Southeast Pass, and toward more beauty, or old Sweetwater, now Dehesa. Do you look over my shoulder to the right, at that fine house and grounds, with its young orange-orchard, vineyard, and 200 acres of barley? Last March, when I rode along here as we are doing now, the house was not yet done; men were busy setting out trees and vines; four plows were turning up the virgin soil for the first time, all in 12 months. But, halt! here we are, beneath this great flume; 82 ft. above our heads flows 5000 miners' inches of water. This trestle, that extends on either side of us, is 1232 ft. long; and what a splendid structure it is, so solid, so strong! Now let's stop a moment and think what a stupendous work is this, and what does it mean to San Diego City and County. Fifty-five miles away, where the peaks of the Cuyamacaes penetrate the clouds, there is where this water comes from. This enterprise cost over \$1,000,000, and this now is what I promised to tell you several hours ago, when we were passing over the thirsty land this side of the city. This is what is going to give that land to drink, to make it bud and blossom, and to make plenty and contented homes all over that now barren waste. On and on, for time presses, 1000 feet now above the sea, and here is Mr. Rose—not a bad house has he got either; and just done. Do you see those ricks of baled hay, the orchard, and vineyard, where 18 months ago not a blow was struck, and Uncle Sam was owner of the land? 'tis true, every word of it. Brace yourself, for John is letting us down the McFarland grade. Whoh there, now! let your eyes do their best. The eye can take it in, but the tongue can not express the scene below. It is the Sweetwater Valley. Look! in yonder distance you see the sweet water coming. It will not pass us. Turning to the right it passes on and down to the great Sweetwater Dam. Before you now is the valley, the land where the celebrated Dehesa raisin of California is raised. This, now, on the right, is Mr. Allen's and Mr. Weddle's, all in one field, you say. Yes, 400 acres in one vineyard, besides fruit. We must certainly hurry on; and while we pass farm after farm with their surroundings, think what will this country we have come over to-day be and look like ten years from now. Let the mind picture the condition then. Here we are at the mouth of Harbison Canyon; one mile up grade, and we are home.

A. W. OSBURN.

Dehesa, San Diego Co., Cal., Mar. 14, 1889.

Well, old friend, you have given the readers of GLEANINGS one of the best pictures of California that I have ever seen—that is, the best pen-picture. It gave me a feeling of pain all through, however, to think that I bungled my trip in such a way that I did not make the trip with *you* in reality. I saw a great deal of what you mention; and I kept saying again and again to myself, "What is to be the outcome of these won-

derful improvements in the next ten years—yes, or even five years?" My brother Jesse and I visited El Cajon, and went through one of the large raisin plantations. That wonderful flume and those gigantic trestles were to me an unceasing wonder. In fact, I did not know, until I viewed that trestle-work and the Sweetwater Dam, that the combined skill of the mechanics of the world could produce any thing so imposing and grand in the shape of mechanical architecture. The work is not only a miracle of strength, but it is to me a miracle of beauty; and the very idea of pouring pure bright limpid water into those desert wastes, and making the wilderness blossom as the rose, fills me and thrills me with enthusiasm. Now, if I had had that buggy-ride with you, before we had been together many hours I should probably have given you an exhortation, after my fashion, in the way of praising God, "from whom all blessings flow." May be you have done that thousands of times, and are doing it every day of your life. If you have not, then why shouldn't you commence now? The very sight of those mountains, especially with the railroads, the great flumes, and dams, contrasting and comparing man's work with God's, seems to me should make any human being feel that God's plans *include* man's, and that his design was in the very outset that there should be mutual love and harmony between God and man. God loves us, or he would not have taken all this pains; and it seems to me that the highest and holiest and noblest thing that man can do is to love God and look to him in thanksgiving and praise very often; and especially when beset by troubles, doubts, and uncertainties does it behoove him to "cling to the rock that is higher than I."

HUBER HIVES.

FOUL BROOD, ETC.

MR. WM. C. BROWN, Otago, New Zealand, sends me a frame by sample post which he describes. He wishes me to give my opinion of it in GLEANINGS. This is really a Huber frame, like the Quinby, Bingham, and new Heddon, only this is closed above and on the sides. The idea is, that there should be no space between the comb and side of the hive, nor any upward ventilation. Very likely a valuable end is gained in the use of such frames. We should judge so from the fact that they are used by such persons as Captain Hetherington, Bingham, etc. The only question is, Does the advantage gained cost too much? To close all openings above would necessitate exclusive side-storing. I do not believe such a system advisable. No one uses it in America, so far as I know. Indeed, I do not believe it very important. The bees seal the top of the hive very closely, and I can see no objection to a shallow space—bee-space—above the frames. In fact, I like it. I have used several hives of the Huber type—closed-end bars—and I believe, after all, that, for the general bee-keeper, the regular Langstroth hive is yet the best. The convenience is more than the slight advantage gained by omitting the end space between the

frame and hive. Indeed, I am not sure that, even in wintering, the old box hive is superior to the Langstroth, especially in wise hands.

Mr. Brown asks me if I think it wise to legislate on foul brood. He asks if the same money and effort put into research will not accomplish more. In reply, I will say that a somewhat similar malady attacks the peach-trees in Michigan. A law was passed requiring the immediate removal of diseased trees as soon as the malady was discovered. That law has saved thousands of dollars to Michigan peach-growers. It was enforced till people saw its value. Now no law is needed. Why would not or might not the same be true in case of foul brood? We have a law in Michigan, but have never had to use it more than once or twice, I think. The very fact of the law seems to have brought the required action without any legal proceedings. We understand the disease pretty well now. One of Michigan's best bee-keepers has had it for two or three years. He told me last summer that he did not fear it at all. He rather enjoyed dealing with it. This man, however, has a big brain, and he knows how to use it.

A. J. Cook.

Agricultural College, Mich.

Friend Cook, this matter of closed-end and closed-top frames, made in such a way as to give them the advantage of the old box hives, has been discussed for more than twenty years through our bee-journals, and I believe the general decision has been in accordance with the views you give. I think you are sound, also, on the matter of legislation in regard to such things as foul brood, the malady that threatens to ruin the peach-trees, and other like matters. It is not because people deliberately propose to harm their neighbors, but it is the ever-prevalent sin of neglect and procrastination. In California, by efficient measures in Ventura County, foul brood has been practically extinguished; but they were obliged to elect some one as inspector, and have him visit the apiaries, and decide what ought to be done. In no case that I heard of did any one dispute the justice of the law, or refuse to do as the inspector directed. But without the law, and the inspector to visit apiaries, make examinations, and decide or advise, if you choose to put it so, what is best to be done, nothing would be accomplished. The simple matter of letting people know that such a law has been passed, is often all that is needed to stir them up to a sense of duty.

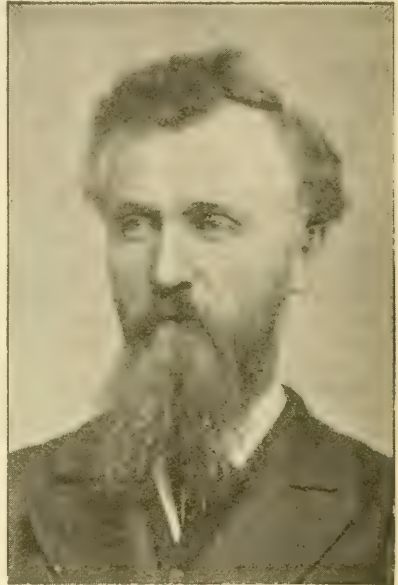
O. O. POPPLETON.

A SKETCH OF HIS LIFE, BY HIS SISTER-IN-LAW.

O. O. POPPLETON was born near Green Springs, Seneca Co., Ohio, June 8, 1843. When four years of age his parents removed to Napoleon, Henry Co., Ohio, where, two years later, his father died, leaving his mother a widow with two sons, in straitened circumstances. Two years later his mother married Mr. Joseph George, of Clyde, O., and settled in Sandusky Co. After living there a few years the great inducements of the West influenced his step-father to move to Northern Iowa, where they settled in Chickasaw Co., when Mr. Poppleton was 12 years of

age. This was his home until two years ago, when he removed to Florida on account of his health.

As Iowa was a very new country, Mr. Poppleton had the full benefit of pioneer backwoods life. His education was obtained in common schools, except about two years at Oberlin, where he also took a commercial course. When 16 and 17 years of age, in company with an uncle of his he taught writing-school at several places in Ohio—at Lithopolis, Homer, Washington C. H., and Springfield; at the latter place he also kept books for a short time in a daily-paper office.



O. O. POPPLETON.

In October, 1861, he enlisted as a private in the 7th Iowa Infantry, and re-enlisted as a veteran in 1863. In February, 1864, he was promoted to a lieutenantcy in the 111th U. S. C. Inf., and a few months later he was made regimental adjutant. It was while performing the duties of this office, and also at the same time those of post adjutant at Murfreesboro, Tenn., that overwork resulted in the eye trouble that has so seriously affected his health ever since, and which compelled the refusal of an excellent offer of employment at the time of mustering out. He served his country faithfully for five years; and though he received no scar upon his body, yet the smell of smoke was strong upon his garments. He was in several hard-fought battles, and taken prisoner once, but was held only a few weeks, when he was released or exchanged.

On leaving the service he settled down on a farm adjoining his parents' in Iowa. He married a Miss Groom, who died twelve years after, leaving him two daughters. Mrs. Poppleton was a confirmed invalid for nine years.

Dec. 6, 1881, he married Mrs. Mattie Herrick, of Ft. Wayne, Ind., who is a sister of the writer of this sketch. On account of poor health, and the very severe winters of Iowa, they went to Florida to spend the winter for several winters, where he found the change of climate, with outdoor living, greatly improved his health.

Mr. Poppleton is a great sportsman, and takes much pleasure in hunting and fishing; and as the climate in Florida is just suited to that kind of work, he enjoys living there, exceedingly. As his wife also has poor health, they spend much time camping out, which way of living seems to agree with them, and they feel much stronger and better than when living indoors. On their return home from the South they brought a great many curiosities, some specimens of the beautiful Southern birds, such as we do not see in the North.

When first married, his step-father gave him a colony of bees in a box hive. It so happened that, in the winter of 1869, an acquaintance stopped over night at his house, and among other papers he had with him was the bee-paper that was at that time published by H. A. King, at Nevada, Ohio, now the *Bee-Keepers' Magazine*. This he became very much interested in during the evening, and immediately afterward obtained all literature on bees he could find, and made a study of the "busy bee." He soon learned there was a better way of handling than in a box hive. He transferred the two colonies he then had into movable-comb hives; obtained other colonies, and in a year or so had quite an apiary, which, in common with so many other apiaries in the country, was almost destroyed by bad wintering. But the use of chaff hives removed this trouble for the future.

On account of having such poor health he made no effort to do a large business, but confined himself to a simple apiary varying from 75 to 150 colonies, spring count, and to the almost exclusive production of extracted honey. For the last ten years that he lived in Iowa, his annual crop of honey averaged 110 lbs. per colony. His half-brother, F. W. George, has had charge of his apiary since his removal to Florida.

Some fourteen or fifteen years ago he discovered the value of chaff as winter protection for bees, without knowing that any one else, notably Mr. J. H. Townly, of Michigan, had previously made the same discovery. He also invented the solar wax-extractor about the same time. He was vice-president for several years of the N. A. B. K. Society; president of the Iowa State B. K. S., and honorary member of the Michigan State B. K. S. Mr. Poppleton is a careful observer, doing his own thinking, and adhering to plans which he has found successful.

Mr. Poppleton is of spare figure, hardly up to medium size. His very pleasant manner is only a fair index of a genial and loving spirit that, in an unusual degree, strives to put the best construction on the conduct and motives of every one.

Bowling Green, Iowa.

MRS. M. GEORGE.

And so it transpires that friend Poppleton was first attracted to bees by H. A. King's publications, from Nevada, Ohio. I myself first got hold of Langstroth's book, but I very soon came to King's text-book and a circular in regard to the American hive. These two last aroused my enthusiasm to such a pitch that nothing would answer, short of a hurried trip to Nevada. I found friend King there, and got my first glimpse of a real bee-hive factory. Every bee-keeper who has heard friend Poppleton talk at our conventions must have been impressed with his very thorough and earnest study of every minute phase of our favorite industry.

Even when I read his writings I am astonished to see how closely and critically he has looked into every obscure point and corner; and his invariable success as a honey-producer attests to the excellence of his wisdom and judgment. We are greatly indebted to him for the solar wax-extractor, as well as for many other things. Perhaps it would be well to say, that, since the writer makes no mention of it, Mr. Poppleton is now in Cuba, taking charge of some 600 or 700 colonies for M. Dussaq, Apartado 278, Havana. Friend Poppleton's experience with bees not only covers the temperate climate, but Florida and the island of Cuba. You will notice that he is one of the respondents to our Question-Box, and he is eminently well fitted to impart almost any information in regard to bees.

THE JAPANESE BUCKWHEAT.

PROF. COOK ON THE CARDINAL FLOWER, ETC.

FRIEND ROOT:—Last spring I purchased of you four quarts of the Japanese buckwheat. I sowed the same on new ground. It ripened earlier than the common kind. The bees worked on it from morning to night, but they did the same on common buckwheat. This is an uncommon occurrence here. I think it was due to the moist, cloudy weather. The buckwheat filled well, but I saved only two bushels of seed. We had a week of warm, rainy weather immediately after it was cut, and it sprouted so badly that I saved less than half the seed. But what I saved is nice. I am convinced that it is ahead of the common kind.

THE CARDINAL FLOWER.

Prof. Cook's article on the cardinal flower interested me, as I am making a special study of bee-botany. I know friend Cook is unprejudiced and good-natured, and will not feel offended if I tell him that there are some things in his article (see p. 926, Dec. 1, 1888) that are not clear to me. Without doubt it is due to my ignorance, or else to my observation of the flower not having been thorough enough. The tube formed by the filaments and anthers is two or three times the length of a bee's tongue, and the nectar is secreted at the bottom of the tube by glands which are on the ovary near the base of the style. There is no opening into this tube except at the top, after the stigma has pushed its way up through the united anthers. Am I not right, friend Cook? Now, the point which puzzles me is as to how the bee gets the nectar. Then from the manner in which the bee must necessarily alight on the flower, I can not see that she would do much better work in fertilizing the flower than those upper flowers which shed their pollen, when the lower ones are most in need of it. To be sure, it would be chance work, but I can not see that it would be any more so than the work of the bee in that line. If I'm in error, please correct me. I admit frankly that I am not as well acquainted with the cardinal flower as I hope to be. The place neighbor Hilton spoke of is only ten or twelve miles from here, and I hope to visit there next season when the cardinal flower is in bloom. In this immediate vicinity it is rare, and grows only in low moist places.

Prof. Cook, you, an entomologist, tell us that the

honey-bees do not bite through the corolla tube of flowers to get the nectar. Very good! But on page 188 of the A B C (or 204 of the last edition) friend Root, a practical bee-keeper, tells us that they do bite through at least one flower, and speculates on the probable fate of the plant. Now, when learned men disagree, what are we common fellows going to do?

THE WILLOW HERB.

Last season I received most of my light honey from the great willow herb, which grows here profusely. It thrives best on high ground, especially where fire has run, hence the commonly known name of purple fireweed. Those who do not know the plant should not confound it with the fireweed which blooms just before the fall frosts. The willow herb is known by a great many names, such as Indian wickopee, deer pink, Indian pink, and purple fireweed. It grows from 4 to 7 feet tall, without branches, and blooms in July and August. There is a smaller variety, which grows on low wet ground, whose stem branches.

Fremont, Mich.

WILLIAM E. GOULD.

COMMENCING THE SEASON.

HOW TO PREPARE FOR THE HARVEST.

OUR first work after getting our bees out of winter quarters is to know that each colony has honey enough to last them from two to four weeks, the latter being preferable to the former. Unless bees have plenty of honey at this time of year, brood-rearing will go very slow, for bees are very frugal when they think there may be danger of starving in the near future; and as brood-rearing requires much honey, it will be seen why honey for four weeks ahead has an important bearing on the honey crop which we hope to obtain. The brood reared during this month and the latter part of last month, constitutes the working force which gathers honey from white-clover, so if we are to get a crop from that source we must leave no stone unturned which looks toward that end. Looking toward this I go over all of my colonies some cool morning, and all which do not occupy six spaces between the combs, with bees, are shut on to as many combs as they have brood in, by means of a division-board, as soon as it is warm enough to work with them. If they are very small, so as to have brood in only one or two combs, and small patches at that, I take away all extra combs, so as to take precaution against robbing; but if they are a fair colony, I leave the extra combs the other side of the division-board, so the bees can carry the honey over as they need it for brood-rearing. Contract the entrance to each colony as soon as they have their first flight in the spring, to suit the size of the colony, giving the very strongest not more than three inches in length of the entrance, while the weakest should be contracted so as to let out but one bee at a time. If, after all precautions, the bees get to robbing, I know of no better way than to carry the colony, that does not protect its stores, into the cellar, and leave it a week or so, or until the bees are getting pollen freely, when they will rarely ever attack them again unless they are so weak as to be worthless. Having all of my bees fixed as above suggested—that is, they all have

honey enough, and those occupying less than seven spaces between the combs shut on to only as many combs as contain brood, our next work is to increase this brood as fast as possible. There is little if any thing gained now by handling the bees, only to supply them with honey, should any be short; but as soon as it comes fairly settled warm weather, I think a gain can be made by spreading the brood to more than pay for the labor required. When such weather comes, the way I work with the strongest colonies, those not having any division-boards, is to change the brood-nest right over; that is, to place the central sheets of brood, or those having the most brood in them, in place of the outside ones, or those having the least brood in, placing those having the least brood in the center. Thus we get every frame full of brood that has any brood in it at all. Frequently we will find all of the brood in one end of the combs, the other end of the frame having none in at all. When such is the case I simply change ends with every alternate frame, which brings about the same result as before. The next time over, or in about a week more, I take one frame from the outside of the brood and place it in the center, and so on till all of the nine frames are filled with brood. Those that are contracted with the division-boards are kept as they are until they have every available cell for brood filled with the same, when an empty comb is placed in their brood-nest also.

If I wish to build all up to strong colonies, I take from those having their hives full of brood a frame of hatching bees, and give it to the strongest of the weaker colonies, and place an empty comb in place of the frame of hatching brood taken, and so on till all are built up to strong colonies, each having a hive full of brood; that means, have the brood so it comes out to the side-bars of the frames; even the cells bordering on the bars at both sides and top should have brood in them, and do not stop short of this. If you have queens that will not keep the hives filled with brood like this during the month of June, mark them, and as soon as convenient replace them with those that will. If you do not wish as many colonies of bees as possible, I will tell you of a plan of using those colonies that needed a division-board, which has been very profitable with me in the past.

As soon as those having five frames have them filled with brood, take from them a frame of hatching brood and give to the next strongest, say one that has four frames, and put an empty comb in the place it came from, and so keep working till you have each hive contain five frames completely crowded with brood. A queen that will not keep five Gallup frames, or their equivalent, crowded with brood is not worth keeping at all, and should be superseded at once. If you succeed as you should, all will have their five frames full about the 10th or 12th of June, in this locality. Now go to No. 1 and open it, and look the frames over till you find the queen; and when you have found her, set the frame she is on to one side, then take the four remaining frames and all the bees to No. 2. Spread the five frames in No. 2 apart, so as to set the four frames brought from No. 1 in each alternate space, made by spreading the frames in No. 2. Close up No. 2 now, and you will see that, in ten or fifteen days, it will be one of the strongest colonies you have in the yard. Returning to No. 1, which we left with the queen standing outside of the hive, we

place the frame in the hive close to one side; and after putting in an empty frame next to it, the division-board is adjusted, when we have a nice nucleus, to be used for any purpose we may desire. I generally use it for building worker comb or for rearing queens according to my needs, and think for either it can be made of more profit than to take away the queen and unite all of the bees with No. 2, as some who have written me conclude is a better way.

I have given the latter part of this article before; but of late I have had to answer so many questions regarding it, that I thought it best to give it again. I hardly think it advisable to put on boxes, in this locality, in May; but further south they should be put on as soon as any of the hives are filled with brood. Of course, each one can use the principle described, whether north or south, and vary the dates to suit their locality. The plan as above given is the best way to get the bees ready for the harvest, in my opinion, after having tried multitudes of other plans, none of which proved as good.

G. M. DOOLITTLE.

Borodino, N. Y., Apr. 13, 1889.

SHALL WE PAINT OUR HIVES?

NOTES ON DOOLITTLE'S ARTICLE, PAGE 217.

UNTIL I read Mr. Doolittle's article on page 217 I had never, I think, heard it claimed that unpainted hives had any advantage over painted ones. His experiment with a number of colonies in which those in the former style of hive came out so much better than in the latter is experience, and can hardly be gainsaid. I have always claimed that the testimony of experience is worth entire volumes of reasoning. But, did he have chaff cushions, or any kind of a good absorbent over the frames? I feel certain that, when that part of the matter is properly managed, all trouble as to moisture will disappear. When I prepare my bees for winter I put about two thicknesses of burlap over the frames, and above them about four to six inches of chaff. The chaff is in boxes, the sides of which are made of boards with a burlap sheet tacked on to the bottom, and the top left open. These chaff boxes rest upon the brood-chamber in such a way as to more than completely cover the frames, so that I think no heat is ever lost. For experiment I have sometimes put on enameled cloth in place of the burlap, in which case I have found them dripping with water, and the combs moldy. But when I use the absorbents, as described above, I have no such thing. I often find the ends of the sheets and chaff wet; but immediately over the cluster, all is dry. It is very little condensed vapor I ever find, and that in the remotest end of the hive. I leave the winter packing above the frames on until the weather is warm and the stocks are quite strong. I think my upper absorbents are about as near perfection, so far as they go, as can be obtained, and obviate all difficulty concerning moisture. That done, I think it not hard to establish the superiority of painted hives. I admit I have not tried, unpainted hives very much. I had one when I commenced bee-keeping, and it, though not an old one, was all warped and cracked, just like any other unpainted box when exposed to the sun and weather. Judging from that, and the characteristics of pine lumber in

general, I considered the matter settled, and went to painting my new hives all white. In behalf of paint, the point of *perfection* must be added to that of durability. But those are not the most important items in the case, after all, I think. White does not absorb heat. It is as a shield from the piercing rays of the summer sun that I want my hives painted white, as many of my hives stand right in the sun. Some bee-keepers, A. I. Root, for one, have given us proofs that, when hives are painted white, the interior is less affected by the heat of the sun than those painted any other hue; and the difference between white and unpainted hives must be the same in kind if not in degree.

One other point: If porous walls allow moisture to pass out, must they not allow it to pass in likewise? I know that the interior of my painted hives is much affected by the dryness or dampness of the weather, while those in the sun are perceptibly dryer than those in the shade. Must not the unpainted (and consequently porous) hives be even more sensibly affected? If I am wrong, I am willing to be set right; but so far, I am satisfied that it is better to adhere to painted hives.

GEO. F. ROBBINS.

Mechanicsburg, Ill., Mar. 22, 1889.

Very likely, friend R., unpainted hives, during a very wet, rainy time, would get more damp and soggy than painted ones; but when the sun comes out I think they will dry out, outside and inside, quicker. In the early spring, when the bees need all the benefit they can get from the sun, a black, unpainted hive would certainly secure more warmth; but when the great heat of the summer sun becomes an objection, it would be just the other way. A careful, enlightened, intelligent bee-keeper will, as a rule, have not only his bee-hives, but his implements and every thing else, including house and barn, kept well painted, while the slipshod don't-care old foggy would be pretty sure to have every thing unpainted; therefore paint indicates the character of the man. I should hesitate some about wanting my hives to present such an appearance as unpainted ones usually do.

WOODEN COMB.

PROF. COOK TELLS US THAT IT IS ALREADY IN PRACTICAL USE.

MR. EDITOR:—You, the publisher of a standard work on potato culture, and most readers of GLEANINGS, will, at the mention of Aspinwall, think of potato-planters. The Aspinwall potato-planter is the invention of Mr. Aspinwall, of Three Rivers, Mich. Mr. A. is not only an inventor of high rank, but he is a refined Christian gentleman, as every one who meets him will at once believe upon looking into his face. How much there is in a face! It is indeed the mirror of the soul. I think, friend Root, you and I once talked this over. In Tennyson's "Elaine," Launcelot, when first seen by the beautiful Elaine, is thus described:

The great and guilty love he bare the queen,
In battle with the love he bare his lord,
Had marred his face, and marked it ere his time.

It seems as if nature had made it so for our protection. The evil heart is very often betrayed by the face. So a clean, pure face as surely indicates

a refined and manly heart. I felt drawn to Mr. Aspinwall when I first met him, just as you and I did to our friend Mr. Cowan. I always feel richer when I become acquainted with such people. Mr. Aspinwall is also a practical bee-keeper, and this is why I am writing of him. He uses a modified Quinby hive, and believes in it. Indeed, he knew Mr. Quinby well, and, like all who knew this excellent man, he can not speak in too high terms of him.

Mr. Aspinwall has invented, and put into practical operation, wooden combs. These are simply boards with round holes the size of brood-cells, cut from opposite sides to the center. Mr. Aspinwall has tried these, and says they are accepted by the bees both for storing and breeding. He puts these in hot wax to soak, so they are covered with a very thin coating of beeswax. He is going to send me a hive fully stocked with these wooden combs, to try. He is sure I will like it. As the partitions between the cells are thick, the combs have to be larger or more numerous in the hives than are natural combs.

THE ADVANTAGES.

Mr. Aspinwall claims that these are superior, as they are strong, durable, inexpensive, perfectly under our control, warm, and so better for winter. As the size and depth are under our control, we can make the combs worker, drone, or store combs, at pleasure; and as the bees can not cut the cells down, they must accept what we give them. Mr. A. says that the queen can not lay in deep cells, thus we can have cells of worker size, and yet they will be only store combs. If combs are $\frac{3}{8}$ of an inch apart, then queen-cells can be made on the edges only, and can be easily seen or found, as the bees can not gnaw the comb away. Mr. Aspinwall has secured a patent on this, which is surely his right. If of no value, then we need not use it; if of value, then we ought to pay him, as it is his invention; and without his thought and work we should have known nothing of it.

I am principally interested in this wooden comb, as I see in it a chance for some very interesting and I think valuable experiments. For instance, our friend Mr. S. Cornell thinks that bees can not live on the carbo-hydrates alone. I believe Schonfeld holds the same opinion, and argues that the nitrogenous material may come from the larval excreta and exuvia which collects in the cells in breeding. From my experiments with very new clean comb I have been led to the opposite opinion. With these wooden combs we can demonstrate the truth or falsity of the position held by the above-mentioned gentlemen. We can use wooden combs in which no brood has ever developed, and combs filled in the upper story above the brood-nest, where no pollen would be stored. Thus we shall have a clincher. Now, I feel perfectly certain that bees thus wintered will not only live but thrive. I think this is in unison with physiological laws. True, all animals need nitrogenous food. But in winter bees are so quiet, and the functional activity so slight, that the small amount of albuminoids needed is in the blood. So with the almost pure carbonaceous food—honey, or, better, pure sugar syrup—they are strong and healthy. Of course, these combs will be very heavy. They may not be practical or satisfactory, but I shall be glad to try them for the sake of experiment and curiosity, if for nothing more.

Agricultural College, Mich.

A. J. COOK.

We are very glad indeed, friend Cook, to

know that Mr. Aspinwall, of whom we have all heard more or less, is a bee-keeper as well as an inventor. I heartily agree with your remarks in regard to our faces being an index to our character; therefore if a man's face is not a good one it is, at least to a large extent, his own fault. I will try to keep it in mind next time, when I feel inclined to scowl and look cross.—If I am correct, father Langstroth has the credit of being the first one to suggest using combs made by boring holes of the desired size and depth close together, in a board. I have been too busy to look it up, but I think that in one of the earlier volumes of GLEANINGS the suggestions were put in print. Such combs have been tried by different ones, if I am not mistaken; but the decision was that they were too heavy; and without exceedingly expensive machinery it would be impossible to get as many bees to the square inch as nature does. More than ten years ago, myself and Mr. Washburn discussed how a machine would have to be made in order to make these perforated boards so rapidly they could be sold at a price within the compass of the average bee-keeper's pocket-book. We have combs with a wooden base now in our apiary; the base was embossed by running it through a foundation-mill. One objection to it was, that it took so much beeswax to soak up the wood.

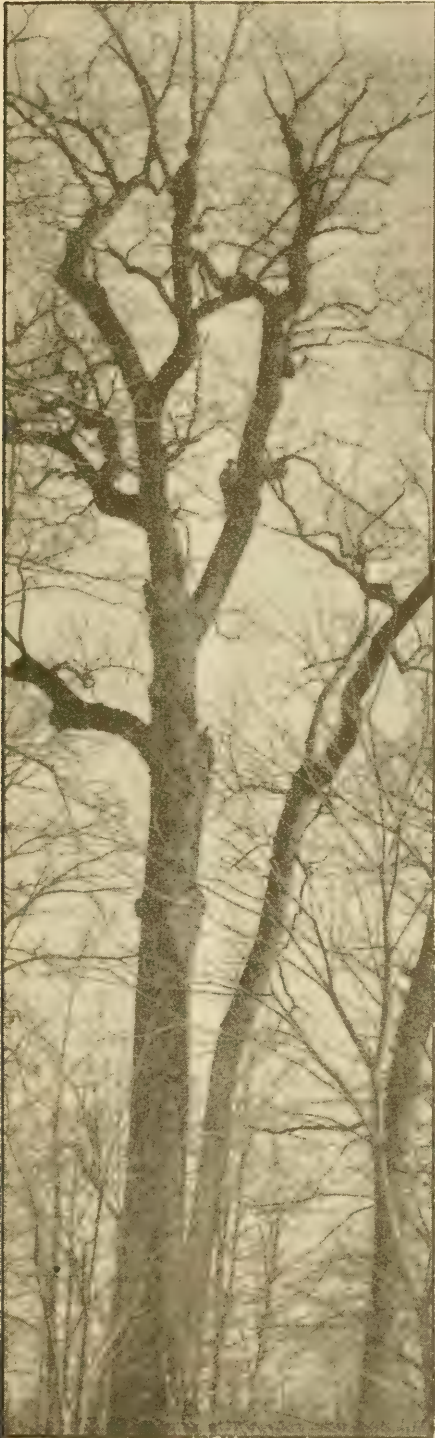
BEE-HUNTING.

HOW TO CLIMB THE MONARCHS OF THE FOREST.

MR. ROOT:—By to-day's mail I send you a photograph of a large poplar-tree, which I climbed recently by means of spikes and staples. To prevent the possibility of falling I put a belt under my arms. To this I attached two chains. At the end of each chain is a snap. My method of climbing is as follows: After ascending the ladder as far as I can go I drive into the side of the tree a large bridge spike, far enough into the wood to hold my weight. A little further up I drive another spike. In between the spikes I drive the first staple, and to this I attach the first chain by means of the snap, and ascend by the nails as far as the chain will allow me; I then drive another staple, and attach the other chain, and next loosen the lower snap. After driving in more spikes, I again ascend as high as the chain will allow me, and attach the other chain to another staple. In this manner I can make my ascent with perfect security.

The tree shown in the picture is 7 feet in diameter at the foot. If you will follow all along up the body of the tree, just above the crotch on the right limb you will see your humble servant, 88 feet from the ground. The tree stands close to the Black River, in a graveyard, and from it I obtained 50 lbs. of honey. Your climbers are excellent for small trees, say from two to three feet in diameter; but the tree illustrated has such a rough and uneven bark, and is so large, that it would be difficult to climb it without the aid of spikes and the staples I have mentioned. On account of the large knots it would be impossible to use a rope, or something similar, to hitch up by climbers, as described in the

A B C book. Knots are not in my way when I use spikes and staples.



DERRINGTON'S DEVICE FOR CLIMBING VERY LARGE BEE-TREES.

Next summer or fall I am going to climb what is called the "Big Bee-tree" that stands on the bank of the St. Francis River, down in the sunk lands. This tree has 15 swarms in it. It is a cypress, 14 feet in diameter at the foot. The bees work in at the body in a stream as large as a man's limb. I shall burn brimstone in the tree, and so kill the bees, as they are very bad. I have bees at home, and do not care to save any of these.

GREEN DERRINGTON.

Poplar Bluff, Butler Co., Mo.

Well, friend D., you have gone and done it, and no mistake. If anybody thought you were spinning a big yarn when you talked about taking bees from a tree 88 feet from the ground, they would give in when they came to look at your picture, for the picture, without question, is a genuine photograph of an awful big tree, with a man perched away up amid its limbs. With a harness such as you describe, and myself securely hooked fast, and held there by stout chains, I do not know but I might consent to climb such a tree; for one could not very well fall, even if he tried to, as you describe it. It seems to me, however, it would take a good deal of work and quite a little time to get up that distance. Ernest suggests that the load of spikes you are obliged to carry along might pull down pretty heavily, especially on the start. Did the 50 pounds of honey pay for the time and money invested? Never mind, even if it didn't. You "got there" and captured the bees, any way.

ORANGE-BLOSSOMS.

DO THEY PRODUCE HONEY?

HAVING followed, with deep interest, the account of your interesting trip to California, in which a great many things bring to my mind what I see here every day, I should like to say something about our orange-blossoms in Florida.

It is no surprise to me that, in California, orange-blossoms give no honey, the land being so dry that it has to be irrigated, and what little sweet there might be on the flowers is carried off by the dry atmosphere. In our State, and especially where orange-groves are situated, there is a continuous drainage of water, at a depth of two to five feet, under the very roots, from lake to lake, all the lakes being on different levels, and from these to rivers. The lakes are very numerous all over. From my house, on the veranda I can count and see four lakes, one of them two miles long. Our orange-trees being thus irrigated by the most wonderful system of natural drainage, are fully supplied with the water needed, and keep their blossoms so moist with sweet nectar that there is actually a small drop of honey in every bloom, which is eagerly sought by the bees. The atmosphere, owing to our proximity to seas and lakes, is always moist, and thus prevents a too rapid evaporation of the sweets on our blossoms. The yield seems to be continuous from morn till eve, since Feb. 15th. I have seen orange-trees, while blossoming, so covered with bees that one might easily have thought there were not one, but half a dozen swarms on one single tree. Our bees swarm during the yield of orange-honey, or, if increase is not desired, they can be worked

for producing what I call, after having eaten honey all over, the whitest, as well as the finest-flavored honey in the world.

J. B. LAMONTAGNE.

Orlando, Florida.

What you tell us is surprising. Notwithstanding all that has been said in regard to Florida and the orange-orchards, I never before heard anybody speak of seeing bees in the orange-trees so that they made a noise any thing as they do in our apple-trees. Is it not only during an occasional favorable season that you have reports like the one above? One other thing: We have had two samples of orange-blossom honey from Florida this spring; and the last sample of comb honey is certainly equal to the California white sage, or to any thing else that it has been my good fortune to taste, in the way of honey. One of the friends sent us a sample that was passed around among the printers, and, if I am correct, they agree exactly with me.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PROPER DISTANCE IN SPACING COLONIES.

WHAT distance must separate two stocks of different blood to keep them pure? If I should remove the queen from a colony, and after a few days should be compelled to return the same one, is there any liability that the bees would be hostile to her? Will feeding meal from a single vessel start robbing among the bees? Will setting hives that are all exactly alike, in a straight row six feet apart, be in any way a disadvantage to the bees? Which is the best way to arrange an apiary of less than fifty hives?

Muskegon, Mich.

E. HILE.

Queens are apt to go beyond the immediate neighborhood of their own hives to be fertilized. To keep the two races distinct they should not be nearer than a mile and a half. Two miles would be better. Feeding meal will never cause robbing. It is not exactly advisable to put hives in straight rows, with the entrances all one way. It is apt to result in some confusion to the bees, and particularly so to young queens. Hives as arranged in the A B C book make a very good arrangement. See "Apiary," in the A B C book.

LOSS OF QUEENS IN WINTER; LOSS OF COLONY;
WHICH MAKE THE BETTER WORKING COLONIES,
THE LARGE OR SMALL CONSUMERS
WHILE IN WINTER QUARTERS?

I have to chronicle the loss of all late fall-raised queens. They hatched out the first week of October, and had ample chance of being fertilized. They were produced in an easy, off-hand sort of way, and they died after the same fashion. I knew they were gone in January, but I had hopes that their bees might live till I could re-queen them. All such colonies died early in March. I do not wish to say that queenless stocks will not winter, but I am certain that, had those queens lived and been mated, I should not have lost one stock. Had all my queens died in winter, all my bees would have been dead now. All had dysentery alike, and all such died. But my vigorous queens began laying in December,

and brood-rearing, less or more, was kept up; and by the time all the old sickly bees were dead I had a nice little batch of young healthy bees in each stock when March came. Phenomenal weather—did you ever know the like? Natural pollen the 15th of March, and brood in from one to three frames each. What will be the outcome of all this? My sickly bees consumed enormous quantities of honey.

I am surprised at some of the answers to Question III. Yet one thing is only fair to these gentlemen; and when I reflect that their homes are scattered throughout the States I am disposed to be charitable. I am no bee-keeper in a scientific sense, but I know enough to know that here in Logan Co. (Central Illinois), the less stores an average colony consumes during a four-months' repose, the healthier will such bees be in spring. Of course, all agree that, after natural pollen begins to come in, the more they consume the better. My bees ate fully 30 pounds each stock this winter, and I shall have to feed; yet my report shows that they gorged themselves to death. I bought, last fall, 4 miles from here, a stock of black bees in a box hive. It was a large hive, and would weigh, in November, between 80 and 100 lbs. I went for it the last of February. I was delighted. The stock was just perceptibly lighter, packed full of bees, and actually not half a pint on the bottom stand. I looked narrowly all around the hive, but no dead bees anywhere. I say this is perfect wintering.

Beason, Ill.

JAMES HAMILTON.

Friend H., it seems to me you are a little hasty in your conclusions. I do not know that I would advise trying to winter a colony that raised a queen which failed to be fertilized. You see, in such a case they were some time queenless before winter commenced. The circumstances are quite different from that of a colony where a good queen was taken out and sold, say in November. In the latter case I do not think there would be a bit more danger of dysentery than if the queen were left with them. In fact, several observations seem to indicate that such queenless colonies are less liable to dysentery or spring dwindling.

DRONES FOR EARLY QUEEN-REARING.

We have seen mention made of securing drones early, so as to commence queen-rearing earlier. Bro. Doolittle can secure the drones early, but not the queens, so he sends south for virgin queens. We can get queens before we can get the drones in this climate, so we send south for drones. We had very fine weather the last two weeks in April, and can commence for queen-rearing to have them hatching by the 10th of May. We should have to have drone eggs laid by the first of April, to have drones to be of any service by the 15th of May. This is impossible with us here. We have for the past two years made arrangements with Mr. P. L. Vialon to furnish us by the 20th of April with a four-frame nucleus made up of two frames of drone brood, nearly ready to hatch; by this means we have them in time. By getting drones from a reliable person who will take pains to have them raised from the best stock, we also get new blood in the apiary, as well as early drones. We prefer to get them in the brood state, but have not heard any one so express themselves. Probably this is original with us. In the March number of the *Queen Breeders' Journal*, advice is given to purchase drones

by the pound, saying that they would likely be worth \$3.00 per lb. Getting drones by the pound would be a handsome job for both parties, the sender to catch them and the receiver to save them from being killed, as that many drones turned in on a colony would not be agreeable. Our way of managing a nucleus received with drones is to make the nucleus queenless when putting them in a new hive, and give them a frame of hatching worker brood. They can be kept queenless quite a while by giving young brood at times until plenty of drones are hatching from other colonies in their season.

JNO. NEBEL & SON.

High Hill, Mo., March 28, 1889.

THE ENTRANCE TO THE SIMPLICITY.

I should like to ask if there is no need of an alighting-board; and does not drawing the hive forward on the bottom-board make too long an opening, giving better chance for robbers, etc.? Please tell me how you space the frames in the hive. Is it not troublesome to change them about till they are just right?

E. CALVERT.

Nashville, Tenn., Apr. 1, 1889.

When robbers are troublesome we would use an alighting-board, as described in our price list and in the A B C. With an alighting-board you have the entrance more perfectly under control than in any other way I know of. For strong colonies no alighting-board may be needed. We space the frames in the Simplicity hives, simply by placing the end of the fingers between the supports at the ends; and one who is in the habit of doing it will do it without thinking of what he is doing, and almost as rapidly as his fingers can touch them.

A WASP'S NEST: DO THE YOUNG LARVÆ CAP THEIR OWN CELLS?

Last summer there was a wasp's nest in my shop. I knocked it down and laid it away, and the larvæ capped themselves over. I uncapped them, and in two or three days they were capped again. I uncapped them four or five times, and they replaced the capping. But each time the capping was thinner and whiter. You will say that the old wasps did it, but they didn't, for I shut the nest up in my shop, and worked there every day. Will the larvæ of the honey-bee do the same?

E. J. SHAY.

Thornton, W. Va., Apr. 8, 1889.

Will Prof. Cook please answer?

BEEES AND SORGHUM SYRUP.

In GLEANINGS for April 1 were some comments upon feeding sorghum to bees, in lieu of honey, as a support until the honey-flow should come in. I can not conceive how any bee-man could successfully do this, unless in connection with other food; bees will cluster around an empty sorghum-barrel in which the staves have absorbed all the moisture, and draw from the saturated wood, or will sip of the fresh cane juice before any fermentation has begun; but sorghum molasses they will pass by in disdain, as it were. Last fall was very dry, and honey very scarce. The mill was visited a little by the bees. The fall of 1887 the season was extremely dry, honey crop short, the crusher was thronged, and thousands of bees were killed. Water was so scarce that it was sold by the barrel. We made a trip of four miles for all we used. Some hauled it ten miles, in tanks holding four or five barrels. The bees

were compelled to drink the juice, yet they did not disturb the new molasses. In my evaporating-room the juice tank and buckets would be covered, the interior part of the building was like the center of a moving swarm, and yet they did not disturb the condensed sweet.

You are aware that there is an acid principle in sorghum that is quite plainly discernible to the taste, and I think this is not relished by the bees; and from the fact that I've been handling both bees and sorghum for quite a number of years, and the two not 200 feet apart, I am assured that bees would come out in worse shape than Dr. Tanner in his 40-days' fast, if any one should attempt feeding entirely upon it.

W. N. ROOT.

Assumption, Ill, April 10, 1889.

While all you say is true, I have known bees to take with avidity a very good article of sorghum syrup, and syrup made of a pretty good article of brown sorghum sugar is taken by the bees just as well as any brown sugar, for all I can see. Of course, they will not use it when they can get better. Enough sorghum molasses has been fed, however, to make it pretty clear that it does not answer at all for winter stores.

HOW WE CURED FOUL BROOD.

You have not as yet (at least I have not seen it) published the method by which you cured, or exterminated foul brood from your apiary. Will you please tell me how it was done? We have the disease here, and I want to exterminate it this spring. I have the A B C plan, Cheshire's, McLain's, and Kohnke's methods. Is there any other? Send me Jones' cure and your own, please.

H. SMITH.

Ionia, Mich., Feb. 25, 1889.

The method by which we cured foul brood is the one given in the A B C book. If you have either the edition of 1887 or 1888 you will find it under the head of Foul Brood. The editions before 1887 do not contain the plan; not having had any experience prior to that time, we simply gave two or three methods of curing foul brood which were said to be reliable. The only plan which we could make work successfully is the one preferred by D. A. Jones, so that the method which we used differs in no important particular from that of Mr. Jones.

TO CONTROL INCREASE.

Would you advise controlling increase of bees, in the following manner, taken from an article by quite an experienced bee-keeper?

"Suppose colony No. 1 to send out a swarm. I move hive No. 1 back from its old stand about 3 ft., and place an empty hive, filled with combs, where No. 1 formerly stood. I hive the new colony in the empty hive, filled with combs, where No. 1 stood. Then shake all the bees from frames of No. 1 into the new swarm. I shake the new bees, that hatch from No. 1, into the new swarm every day, until another colony sends out a new swarm, when I use hive No. 1 for an empty hive to receive the second new swarm, and treat No. 2 the same as No. 1.

Ellsworth, O., March 26, 1889. L. B. B. BINGHAM.

The plan you give is one that has been often recommended through the journals, and answers very well, only I should not want to shake the bees off those combs every day, as you suggest, for there would

then be none to take care of the brood, to keep it from chilling and starving, until the second new swarm came out. If you are sure of having swarms every day, it might answer; but otherwise you would lose all the sealed brood left when colony No. 1 swarmed. When a natural swarm comes off, there are always bees enough left in the hive to take care of the brood. I think that these bees had better be left there. Where one has more bees than he wants, however, and does not care if the brood does die, this might answer, to get as much honey as possible, regardless of loss of bees.

THE SHRUB THAT BLOSSOMS THROUGH THE SNOW.

You inquire about forsythia. It is a cultivated shrub that is referred to, I think, and it has been known for at least 20 years to be a pollen-plant in this State. It will be in bloom from April 1st to May 1st, according to season. It is good; it looks well with its load of rich yellow flowers on the bare green twigs, and before any other shrub blooms. Bees work on it well. Its abundant bloom is fine too. I can send you a bundle of cuttings if you want them. It is as handsome a shrub as a Japan quince.

H. L. JEFFREY.

New Milford, Conn., March 22, 1889.

Thank you, friend J.; but it now transpires that we have the forsythia in our own dooryard. We never knew it to blossom, however, when the snow was on the ground. Its yellow flowers usually come out the last of April or first of May. We should not have recognized it, perhaps, had not one of our subscribers sent us some twigs by mail, directing us to put them in a tumbler of water, saying they would soon blossom, which they did, and I at once recognized it. It does not seem to do well, however, very much further north than we are. See the following:

FORSYTHIA VIRIDISSIMA.

Over thirty years since, in a bale from Ellwanger & Barry, of Rochester, N. Y., was one of the above-named shrubs. It blossomed the next spring; that is, a small part of it. In three or four years it was increased to several, and each one would have a little branch or two blossom every spring, just enough so that one could imagine what a beauty one would be in full bloom. I tried "protection" and cellar "wintering" on them, but with no better success; and after eight or ten years I became disgusted, dug them up, and consigned them to the flames. From 15 to 30° below zero was too much for them. I kept bees, but never saw one on the blossoms. The shrub is probably kept in most nurseries.

JAS. H. ANDRUS.

Almont, Mich.

THAT FINE QUALITY OF CALIFORNIA HONEY; MORE ABOUT IT.

Friend Root:—In company with the rest of the unvisited Californians, I was somewhat disappointed in not seeing you while you were in the land of booms. I had saved out about a ton of the X quality of comb, of which I sent you a sample case last fall. In acknowledging the receipt of the case you spoke of the honey as the finest, both in taste and color, that you had ever seen, and said that you would give "considerable" to know what feed would produce such honey. Well, it was gathered from alfalfa blooms, pure and simple, all three

grades, the darkest during cooler nights, the lightest during the warmest nights and hottest days (110° in the shade). Remember, too, that this beautiful white honey was produced in the San Joaquin (waw-keen) Valley, and not in the mountains, and that I have taken the first premium whenever I have exhibited in competition with the "white sage" and other grades of California honey. Did you find any thing superior to it, while on your pleasure-trip?

I hope that both yourself and Mrs. Root will find time to visit us when you come to the State again.

LOUIS W. BURR.

Bakersfield, Cal., March 18, 1889.

Friend B., we have never seen any nicer honey to look at, and, I think I may add, finer to the taste, than the samples you sent us; and I am very glad indeed to know that it came from alfalfa and nothing else. But, strange to tell, when I inquired of bee-men in California, near the great alfalfa fields, I do not remember one of them who told me they got any honey at all from it. They seemed to treat the whole thing as a sort of myth. Our older readers will remember that the alfalfa that we tested here on our honey-farm did not yield enough honey so that a bee was ever seen on it. This matter is interesting, as quite a few bee-keepers have been talking of sowing alfalfa, mainly because it is a honey-plant. Now, will you tell us something about it in your locality? Does it yield honey every year? and is it possible or probable that it will amount to any thing for honey when small patches are sown, the same way we sow buckwheat for bees, for instance?

NOT IN FAVOR OF QUEEN-EXCLUDING HONEY-BOARDS.

When I received your price list yesterday I looked through it as soon as possible to see what you had that was new and useful; but when I came to the zinc honey-boards I stopped to consider (as Eli Perkins used to say). Well, I have had considerable experience with those things—about ten of them. I can't call them honey-boards or queen-excluders, or any thing very good. They were on the common L. hives, and every brood-nest was above the queen-excluder, and all were very weak—much weaker than other hives in the same apiary. One of the excluders was so full of dead drones that a common bee could scarcely get through it. The poor fellows were all hung by their necks; and when I lifted the zinc up it looked more like a large brush than a honey-board. A man ought to be taken up for cruelty to animals who would use such a thing. I use the Heddon slatted honey-board. Friend Wilkin says he don't believe you dare publish this; but I don't care; that is just what I think of zinc honey-boards.

L. E. MERCER.

San Buena Ventura, Cal., Mar. 15, 1889.

Friend M., you tell our friend Wilkin that he must scrape up a little more charity. We not only *dare*, but we *want* facts, both for and against every thing we advertise and sell. In all that has been said for and against the perforated zinc, we do not remember to have received a report like yours. In the Alley drone-trap we have seen a few drones caught in the manner you describe; but we concluded that the poor fellows had worried so long to get through that they died in the attempt, hang-

ing, as you say, by their necks; but we can not understand why the brood-nest should be above the honey-board. The new perforated zinc which we send out will exclude queens. Some of the zinc which we sent out two or three years ago was a little defective, some of the dies having been flaked; but this we remedied by making new dies and building a new machine. It is possible that you have some of this old zinc; but we venture to say that you would have no trouble with our new zinc. If, in your next order, you will refer to this page in GLEANINGS, we will send you ten new zinc queen-excluding honey-boards, wood-bound. We shall be pleased then to have you report to us after trying it. Please remember that there are a great many good bee-keepers—some quite extensive ones too—who use and advocate perforated zinc.

LARGE OR SMALL BROOD-CHAMBERS.

I will crack Mr. S. A. Shuck's nut, in GLEANINGS of April 1, page 259. Your frames were too shallow for their length. A natural, good-sized brood-nest, embraces a sphere of about 10 inches in diameter; so if your frames were 10 x 10 or 11 x 11, you would have had better success. I have used 10 x 10 frames for several years, and like them very well; but for a more northern latitude I think they would be rather small, and think 11 x 11 the better size, or, say, the Gallup size, 11¼ x 11¼, as that is already largely in use, I think. J. C. MELCHER.

O'Quinn, Tex., Apr. 10, 1889.

If your object were to raise *bees*, without any regard to getting surplus honey in sections, no doubt a square frame would be best; but I think a perfectly round one, in the form of a barrel-hoop, would be better still; but if the bee-keeper wants to get every drop of honey possible into the sections, and does not care particularly for increase, then I feel satisfied that he wants a frame something like the one that father Langstroth gave us years ago—a frame that will permit the section boxes to come down quite close to the heart of the brood-nest. Some of the friends want them even shallower than the Langstroth frame. The great bee-keeping world seems to have so settled down to something like the Langstroth frame, especially where we want comb honey, that I think we might as well accept it as the standard.

SUPERSEDURE; AND IS THERE ANY PREVIOUS INDICATION OF IT?

1. How can you tell when bees are going to supersede their queen? 2. If a worker bee—an imperfect female—loses its sting after using it, and its life, why does not a queen—a perfect female—share the same fate under similar circumstances?

Atlanta, Ga., April 8, 1889. T. E. HANBURY.

1. We do not know of any way to tell positively when bees are about to supersede their queen; but as a rule we may say that queen-cells started at some other season than swarming time rather indicate it. And if at the same time the queen does not seem to be producing very much brood, then we have every reason to think she is about to be superseded. It is my opinion, however, that queens are often superseded when there is no apparent reason. 2. Worker bees,

when they sting each other, do not generally lose their stings. The queen rarely ever stings a human being; almost the only occasion when she uses her weapon is to sting a rival. If the *worker* bee does not lose its sting when it stings one of its fellows, it is not at all likely that the queen would lose her sting when she uses it upon another queen.

SETTING SAWS; HOW TO DO IT AND HOW NOT TO DO IT.

I noticed in GLEANINGS for Feb. 15, an article by William Young, inquiring how to set a circular saw. Now, if he takes my advice he will use the spread and spring set. Spread the teeth just enough to keep the tooth full width, or a little wider, as the saw will run lighter. Do not set them with a hammer, as it will reduce the width of the teeth, and it is liable to break them off. Spring them by some other means. Joint your saw carefully, and set evenly. When you file, you want to file by ear; that is, get your ear used to it, and you will get it right every time. This is my way of doing it. I have been a sawyer for 20 years, and have all kinds of saws. B. BAKER.

Elyria, O., Mar. 1, 1889.

Your letter was shown to our foreman, Mr. Warner, and he says what you say is entirely orthodox.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but *ALL* QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

FLOATING APIARIES ON THE NILE.

YOUR remark at the bottom of "Floating Apiaries in Egypt" quite amused me, about your idea of the man in the stern smoking his pipe. You should see the Arabs assemble together and lie down flat on their bellies, smoking or gaming, the laziest set of people; but the hives on the boat are European shaped, while I don't think they have any of the kind, but as described in the article, and then there were certainly much more than eight.

PH. J. BALDENSPERGER.

Jaffa, Syria, March 22, 1889.

TO FOLD DRY ONE-PIECE SECTIONS.

I see considerable advice on how to fold sections without breaking when dry. There is no use to carry them into the cellar over night to dampen. Edge them up on a board and pour hot water through the grooves; let them lie for 15 minutes. Your readers will succeed every time, without breaking them. M. B. BERGEY.

Souderton, Pa., Mar. 28, 1889.

EXTRACTING IN CALIFORNIA.

One hundred miles from here, in California, they are extracting, but I do not think they get quite such fine white honey there, nor of the same flavor. Our harvest will not commence until June, although the bees are quite busy now on the blossoms, and lots of brood in the hives. I don't know how I shall like the supers, but will let you know which I prefer, in the fall. E. A. MOORE.

Reno, Nev., Apr. 3, 1889.

Bees are booming fully 20 per cent better than last year at this time. S. L. KLUTTS.
Clear Creek, N. C., April 12, 1889.

ENCOURAGING FOR CALIFORNIA.

There was 7 inches of rain three weeks since. This makes every thing boom. R. WILKIN.
Ventura, Cal., Apr. 1, 1889.

THAT ABSCONDING SWARM OF MRS. CHADDOCK'S.

The queen that was left under the goblet belonged to one of the swarms that absconded. The swarm was not joined by any other swarm, but went off alone. Generally bees do come back to the queen. I clip all my queens' wings, but I do it early in the season, and they might possibly have a new queen by swarming time. The one mentioned had her wing clipped. MAHALA B. CHADDOCK.

Vermont, Ill.

[I am quite sure, my friend, that your absconding swarm did have a new queen. Where they got her is another question.]

SIDE VS. TOP STORING.

I have 8 swarms of bees; 2 of them are in hives, with sections at the sides of the hive. Do you not think the bees would enter the sections quicker if they were on top of the hive? W. C. MARSH.

McLane, Pa., Mar. 27, 1889.

[The bees will enter the sections quicker at the sides, usually, than above; but the objection to side storage is its inconvenience, and also the fact that there is not room sufficient for storage of a very large amount of comb honey. Top storage is now generally preferred.]

BLACKS AND ITALIANS.

Why is it that Italian bees do not carry any pollen? I have two colonies of blacks and one of Italians. The blacks are busy carrying pollen and honey, while the Italians are bringing in honey only, from maple bloom. R. I. CROMLEY.

Muncy, Pa., March 22, 1889.

[The Italians do carry pollen, and, as a general thing, more than the blacks. If, however, honey were to be had, I rather think the Italians would put in their time on the honey while it lasted, and depend on getting pollen when they could not get any thing any better. Was it not so in your case?]

CHAFF FROM TIMOTHY SEED.

In March 15th GLEANINGS a friend asks about packing bees with oat hulls. I packed mine with chaff blown from timothy seed while cleaning ours. I think, so far as I have experimented, that it goes far ahead of oat or wheat chaff. Has it been tried before, and with what success? V. E. FREEMAN.

La Grange, O., March 23, 1889.

[I do not know why chaff from timothy seed would not be exactly as good as that from oats or wheat. I suppose any thing of that sort which one happens to have handy would answer about as well. I should think, however, that timothy chaff might be a little more liable to pack down tight and get moldy.]

ON THE EDGE OF 80 ACRES OF CLOVER.

I have a good place for bees at the foot of the Rockies, with plenty of clover, alfalfa, and wild flowers all around me for miles. I intend to keep my bees at the edge of a clover-field of 80 acres, and in this section it blooms till snow flies, and the flowers are in bloom from April till November.

MRS. M. A. DEPP.

Pueblo, Colorado, Mar. 25, 1889.

[I should think your place would be wonderful for bees. We should be very glad indeed to have you tell us what the crop is from an apiary on the edge of 80 acres of clover. I presume, of course, in your locality you are obliged to irrigate, to keep the clover from dying during the summer drouth.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 121.—When a prime swarm clusters, it hangs in the cluster for a certain length of time; and if not hived it goes off. a. What is the longest time you ever knew a prime swarm to remain thus clustered before going off? b. The shortest?

a. For 21 hours; b. 21 hours. O. O. POPPLETON.

a. Half a day; b. ten minutes.

MRS. L. HARRISON.

a. Thirty-six hours; b. perhaps an hour.

JAMES A. GREEN.

a. I have known them to remain over night. b. I knew one not to alight at all. A. J. COOK.

Bees never do any thing invariably. I consider it wholly a matter of circumstance.

H. R. BOARDMAN.

I have had them remain 2 days. I have seen them off in 10 or 15 minutes after clustering.

PAUL L. VIALON.

I have had little experience with natural swarms. We have always had our queens clipped, and have made our increase by division. P. H. ELWOOD.

I do not remember more than two prime swarms leaving me; one of them was an hour and a half, the other I did not know when it came out.

R. WILKIN.

a. Over night. b. We have, as a rule, to hive the swarms as soon as possible, and advise bee-keepers not to defer the hiving, for no two swarms act the same. DADANT & SON.

I never had a swarm cluster and then leave. In fact, I never knew but one swarm to leave that had clustered, and I don't know how long that had been clustered. A. B. MASON.

a. For almost 2 days; b. an hour or two. I have seen a first swarm settle for about 10 minutes, and then leave for a hollow tree, in a bee-line. It had, however, a virgin queen, to the best of my judgment. CHAS. F. MUTH.

When they have alighted in a sheltered place at the trunk of a tree, or upon a fence where a limb or board protects them, I have known them to commence building comb and remain until removed. I have also seen them start to go away before I had clustered. L. C. ROOT.

a. I've known them to remain over night several times, and I think some of them remained about 24 hours, and they might have remained longer if they had not been hived. b. I think about three hours, but I am not sure, and I never knew many swarms to go off. C. C. MILLER.

I have known a swarm to thus remain two days. I always consider it somewhat risky to leave them over ten or fifteen minutes. I can not answer the second part of your question, for I never had a colony leave their new home when I knew how long it had been clustered, out of the many thousands I have hived. JAMES HEDDON.

Oh! I don't know. Small second swarms I have known to hang to the limb of a tree in the grove for several days, and even build comb; but large swarms will usually decamp if not hived within a

few hours. For many years I have not had an opportunity to observe the time, nor have I taken special pains to experiment in this direction.

GEO. GRIMM.

a. From 2 P. M. to 10 A. M., when the weather was pleasant. If a storm comes on during the night they hang till they starve, or a pleasant day comes. b. I have known of their going off without clustering at all. When they do cluster it is a rare thing that they stay less than half an hour.

G. M. DOOLITTLE.

I knew a swarm to settle on a gooseberry bush and stay there until they had built combs and hatched bees. They were then hived and worked well in the hive. The queen's wing was not cut. I have known a swarm to cluster and stay 24 hours, and then go off. I have known swarms to go to the woods, right from the hive, without clustering at all.

E. FRANCE.

What queer creatures we are! Notwithstanding long experience with hundreds of swarms, I don't know that I can answer either question precisely. Bees which come out without being seen, I often discover when they start to go off. This is often the next morning, about the time it gets to be nice and warm and dry. From the nature of the case, the exact number of hours can not often be told. And how am I to know but that in some cases they may have hung waiting for two nights? I think three or four days has been reported. Sometimes they stay always, and build comb, and continue camping out until the winter kills them off; but I have never had such a case. As to b, I dimly remember a big swarm that alighted in the pear-tree after I was tired and disgusted with swarms. I continued reading for a little while before going to attend to them; and when I went, lo, they were gone! If you will take the number of minutes a body reads when he just reads a little while, and subtract the number of minutes they had been gone when I looked—why, that will save me the trouble. If we take prime swarms inside of half an hour after they become quiet we shall not lose many, I think.

E. E. HASTY.

One or two speak of swarms remaining where they cluster, not only for several hours, but for days, weeks, and months. In California it is very common for them to build comb right where the swarm alights, and stay there permanently; but I believe that Prof. Cook and E. France are the only ones who say they have known a swarm not to alight at all. Where they have selected a location before swarming, I think quite a good many go straight from the hive to the hollow tree. The reason why so little is said about cases of this kind is because nobody sees them at all.

QUESTION 122.—*When do you prefer to hive a swarm—as soon as possible after it issues, and before all have clustered, or after all have fully settled, or some time after settling?*

As soon as they have settled. E. FRANCE.

As soon as possible after it issues.

GEO. GRIMM.

Just as soon as the majority are clustered.

P. L. VIALLO.

As soon as they have fully settled.

MRS. L. HARRISON.

Just as soon as possible after they issue.

H. R. BOARDMAN.

I prefer to hive a swarm immediately after they have fully settled. C. F. MUTH.

The hiving succeeds both ways; but it is a little easier after all the bees have settled.

DADANT & SON.

If not expecting other swarms, I prefer to allow nearly all to cluster, but I do not consider this at all material.

O. O. POPPLETON.

As soon as convenient, after all or nearly all have clustered. Generally, though, I make them return and hive themselves.

JAMES A. GREEN.

I have had so little experience that I don't know; but I suspect it may be best to hive them just as soon as they are fully settled.

C. C. MILLER.

I should prefer to hive a swarm as soon as possible after it issues. The most of my swarms cluster in a hive on the old stand. I keep one wing of all fertile queens clipped.

A. B. MASON.

If I had a natural swarm I would secure them in the hive as soon as I could after they had settled; but I am not an advocate of natural swarming. If I had a box hive I would practice a better method.

L. C. ROOT.

I prefer to catch the queen, whose wing is always clipped, and let the bees hive themselves. They usually come back in less than one hour, often in ten or fifteen minutes. They rarely fail, however, to cluster.

A. J. COOK.

I prefer to hive a swarm after nearly all the bees have clustered, under ordinary circumstances. The kind of bees and the alighting-place have something to do with it; also your method of hiving; just the right amount of fine sprinkling helps wonderfully.

JAMES HEDDON.

I aim to hive bees as soon as they have clustered enough so that my working will not prevent their settling; or, rather, I place my swarming-box among the bees and let them enter so as to be carried, as soon as settled, to the hive, thus lessening the danger of other swarms joining them.

R. WILKIN.

When I get ready. As all of my queens have their wings clipped, I can hold them in the cluster as long as I please. I have many times had them get tired of my motions, uncluster, and go off, leaving the queen hanging in a large wire-cloth cage to a limb or swarming-pole; but they soon came back and clustered with the queen again. If I did not clip my queens I should hive the swarm as soon as two-thirds of the bees had clustered, if I could get to it as soon as this.

G. M. DOOLITTLE.

Don't try to make beds before people get up, nor to hive bees before they have had their flurry out. It would probably be a little better to keep them waiting awhile; but the difference is so trifling, and the danger of losing them so serious, that no time should be lost after all are quiet. In my own practice I often make them wait until nearly sundown before they are hived, when so many swarms come out that I have not time to attend to them. This I can readily do, as I always keep a plenty of little pits in the ground handy by, into which I can chuck them; and the baskets in which I take swarms all have legs tacked on to them. When things work just right, most of the swarm alights on the basket in the first instance, and never on the limb at all.

E. E. HASTY.

Quite unanimous. Friend Hasty, however, says, "Don't be in a hurry." I have

seen so many swarms go off, however, because we had not got quite ready to take them down, that I would get a comb of brood among them just as soon as it could be done; and this brings us to 123.

QUESTION 123.—*What special means, if any, do you use to prevent the absconding of a swarm after it is hived?*

Give it a frame of unsealed brood.

C. C. MILLER.

Give a frame of brood and shade.

A. B. MASON.

I usually give the swarm a comb of unsealed brood.

R. WILKIN.

I use no other means than to give them a clean cool hive.

C. F. MUTH.

Only make them comfortable by giving shade if the weather is hot.

H. R. BOARDMAN.

I keep my queens' wings clipped; and if one should become dissatisfied I give it a comb of young brood.

GEO. GRIMM.

I put in brood, in all stages. Notwithstanding the assertion of some of our best bee-keepers, I am fully persuaded that it does good.

A. J. COOK.

By putting a frame of uncapped brood, it is very rare that a swarm will leave the hive. I use a frame of brood and one of honey.

P. L. VIALLO.

Usually none, except to place the hive in the shade if the weather is warm. On some special occasions, with peculiar or cranky swarms, I have given a frame of brood.

MRS. L. HARRISON.

Of late I have used none, but think I shall return to the old plan of giving a frame of unsealed brood, as last summer I had to hive some swarms several times a day for nearly a week. Of course, I keep my queens' wings clipped.

JAMES A. GREEN.

Clip the queen's wing; then if they try to go off, the queen can not go, and the bees will return to her. Then if I were there, or had an assistant there at the time, I would cage the queen for a week, and leave her in the hive, of course near the tops of the frames.

E. FRANCE.

1. Avoid having any natural swarms to hive. 2. Hive them in a clean cool hive, and be sure to give it proper shade. A comb of brood placed in the hive will also induce them to stay. If the wing of the queen be clipped, the bees will not go to the woods without her.

L. C. ROOT.

First swarms do not abscond except when something is offensive to bees in the hive, or when the bee-keeper before hiving has given them comb, containing or smelling of honey, which has attracted robbers. Second swarms sometimes leave the hive, to follow the young queen in her mating-trip. If you desire to be secure, give them a comb of young brood, after (not before) hiving.

DADANT & SON.

As I have never had more than two or three swarms, during all my twenty years of bee-keeping, leave their home after being hived, I find it unprofitable to take any precautions against it. When they do start out, do not expect them to alight, but get after them with double force, with the Whittman fountain pump, and, nine chances out of ten, they are yours. After re-hiving you might slip in a comb of young hatching brood.

JAMES HEDDON.

Ordinarily I give the new swarm a frame of brood, but not always. I am, however, very particular in having the hive well shaded, for two or three days at least. As I have never had a swarm abscond after being hived, my knowledge of what is necessary to prevent their doing so is theoretical only.

O. O. POPPLETON.

I do not find any special measures needful, if the bees are entirely unmixed with others. I have no especial spite against a frame of brood; but as a minute in "pudding time" may be incalculably precious, I do not usually take pains to give brood. Mixed bees are, with me, very apt to kill all the queens; and, of course, they must have brood given them in every case. To be entirely sure of badly mixed messes it is necessary to imprison them, hive and all, in a pit for several days after hiving.

E. E. HASTY.

Swarms having clipped wings do not abscond; and as I keep my queens' wings clipped, none go away; or, in other words, I have not lost a swarm by their going away during the last 18 years, having allowed natural swarming all of the time. I do not allow second, or after-swarms. If I did, the case might be different, for such queens must have their wings till they get to laying. Some put a strip of perforated metal before the entrance of all prime swarms, after they are hived, which is a sure preventive, as the queen can not go with the absconding bees.

G. M. DOOLITTLE.

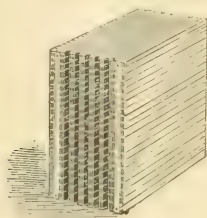
I am glad to see so many friends support me in my oft-repeated instructions to put some unsealed brood with every cluster of bees, under all possible circumstances, whenever they are removed from one place and put in another. We are not always sure they have a queen, and, of course, they will scatter around and get lost very soon in the absence of a queen. The unsealed brood fixes every thing sure in any event, and indicates in a very few hours the want of a queen when such is the case. How often we hear novices worrying about their bees, and saying, "I am afraid they have no queen." Sometimes I reply, "Why, you might as well say you are afraid you have no horse, and keep looking at the outside of the barn, without even opening the stable door." I often reply, further, "Why, look and see." Then the answer comes, "Well, I can't find any queen; and, in fact, I should not know her if I did find her." I should not wonder if there were hundreds of the readers of GLEANINGS who are in just that predicament now. Well, my friend, you can tell, even if you do not know a queen. If you put in that frame of unsealed brood we have been talking about, you can tell in a very few hours whether there is a queen in the hive, even if you know almost nothing at all about bees. Just learn to watch for queen-cells, and then this comb of unsealed brood is like the steam-gauge to the engineer. He glances at the gauge, and he knows when every thing is all right. I want some unsealed brood with every colony of bees in the apiary, queen or no queen, new swarm or old swarm, nucleus or full colony. So far as my experience goes, it never does any harm, and it is pretty sure to do some good under all circumstances.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

DOVETAILED HIVES IN THE FLAT

THE feature of dovetailing on the new hives enables us to send them out in the flat for less money than we should otherwise be able to do. The expense of crating is almost nothing compared with crating ordinary hives. To crate 20 sides or 20 ends (enough for 10 bodies), all we use is four strips of wood $\frac{3}{4}$ inch square, and in length equal to the height of the pile of sides or ends, as the case may be. The dovetailing is just $\frac{3}{4}$ inch wide. Into the outside groove, at each of the four corners, we drive one of these strips. A single nail driven through the end of each one of these strips into the top board and bottom board secures the strip. Four of these strips hold the pile of sides or ends perfectly rigid without other crating. The accompanying engraving will make the idea plain.



TWENTY DOVETAILED SIDES CRATED TOGETHER.

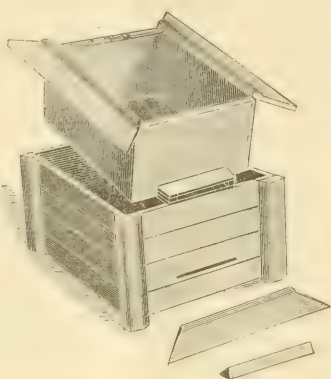
The two light strips of wood in the perpendicular groove in each corner show how the cleats are secured. Whatever little additional expense there may be attached to dovetailing, it is entirely made up by the cheapness of the crating of the sides and ends. Even the super sides or super ends can be slid in among the hive sides or ends, and make one complete and whole package. Our foreman says that we have now made something like 1200 hives; of this number sent out, not one report has been received of this sort of package breaking. Just think of it! Four strips of wood and eight nails make the entire crating for 20 sides.

The small amount of crating not only reduces the expense of putting up these hives for shipment (a saving to the purchaser), but it reduces the weight, and, of course, the freight charges. When these hives are to be sent by express, the reduction in charges will be considerable. Can any one now say that the dovetailing is a useless expense?

HOW TO NAIL TOGETHER THE ONE-STORY CHAFF HIVE.

A good share of our customers who buy the chaff hive have trouble in getting it together right; and for their benefit I append these directions. First put together the outside shell. Nail the four pieces of siding to one pair of corner posts, beginning at the top, and making each one to reach clear up into the corner. After having nailed together the other side in like manner, then nail in the siding for the ends, the latter abutting

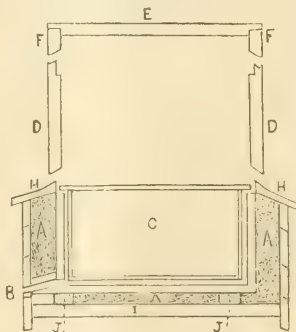
against the four sides as shown in the engraving. Be sure to observe this point, or the dimensions of the outside shell will be wrong. The inside box, or brood-chamber



ONE-STORY CHAFF HIVE, AND HOW TO PUT IT TOGETHER.

proper, is then to be nailed together. As the side pieces are rabbeted, no mistake can be made by getting them together wrongly. One of the bottom-boards to the inside box projects far enough to make a doorstep, as it were. On each side of this lay one of the $\frac{3}{4}$ in. square short strips. Upon these lay one of the 2x9 boards, and a similar board is to be placed on the under side of the doorstep to strengthen it. Then nail the whole together and you have an entrance or passageway much like that shown in the engraving above. See B in diagram below.

Now, instead of setting this shell down inside of the other, first nail on top of each side of the inside box the two side rim pieces, shown in the cut above. Set the inner box down into the outer shell and adjust to position. Having made the inside entrance match with the outside, nail the two side rims to the four corner posts, after which insert the two end rims, and nail to the inside and the outer shells. After having done this, slide four little pieces of tin, beveled slightly, into a groove which you will find in the miter between the end and side rims. Having made sure that the entrance match-



CROSS-SECTION OF CHAFF HIVE.

es with the side board shown in front, nail fast. The little three-cornered piece lying in front is to be nailed just below the slot-

ted entrance. The hive is now complete except packing with chaff. To do this, invert the hive, pack with chaff, preferably the wheat chaff. Tamp it well down until full. Lay in a couple of cross-strips as per diagram J J, and nail to the two opposite bottom side pieces. Level up with chaff, cover with the tarred paper, and last of all put in the bottom-boards and nail to the strips J J.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

HOW THE BEES WINTERED.

OUT of a little less than 200 colonies, we lost two—making a percentage of only one per cent. These two colonies had plenty of stores in the hive, though none on the combs on which they were clustered. A good deal of brood was started in one side of the hive. A cold snap of weather coming on, and the bees refusing to leave the brood, starved, leaving a couple of combs filled with capped stores on the opposite side of the brood-nest. This sometimes happens with us, but not often.

DISPENSING WITH LOOSE CHAFF IN WINTERING, AND ITS RESULTS.

This year we left off all loose chaff in packing our colonies, and used nothing but an ample burlap chaff cushion. In years gone by we have used two or three inches of chaff between the cushion and the burlap sheet; but every time it became necessary to examine the colonies so packed we were obliged to gather together the corners of the burlap, lift it out with its load of loose chaff very carefully, and deposit it on the ground where it would be subject to every little eddy of wind. Using as much care as we could, we continually spilled considerable chaff among the bees, and of course this meant, the next spring, scooping out and perhaps turning the hive bottom upward, to clean it. Aside from the inconvenience in making examinations, it is considerable trouble to put it on in the fall and remove it in the spring. I accordingly decided last fall, that we would use large baggy cushions instead of loose chaff and small cushions, and the result has been just as good as any year we have wintered bees. We formerly thought it was necessary to use the loose chaff to prevent the bees from coming up; but if the cushion is tucked carefully in the corners there will be no trouble. Perhaps I should add, in this connection, that the cushion should be filled very loosely with chaff, and should be a little larger than the upper story of the hive, so as to fit snug and prevent all possibility of currents circulating down to and from the brood-nest. In another column it will be seen that our friend A. E. Manum has likewise abandoned the loose chaff, and he speaks of the very great convenience he finds in dispensing with it. It is just fun to make examinations compared to what it has been during early spring.

NEW HONEY.

Some discussion has arisen as to whether bees gather honey from maples. I feel pretty sure that our bees gathered largely from this source this year, because there was little if any thing else in bloom. When going over the colonies we noticed a great many combs containing some unsealed raw nectar. Into several of the combs I punched my finger, and transferred the same to my mouth. The flavor was not unlike that of new maple syrup. You may say that I stretched my imagination a little bit. I do not think I did, because the flavor was very distinct. The stronger colonies must have obtained an average of two or three pounds; and, as may be imagined, it had a stimulating effect on brood-rearing.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, provided he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

RUM AND TOBACCO, AND THEIR BIG FAMILY OF CHILDREN.

BRO. ROOT:—I send you a short article on tobacco. I do feel that, as Christians and refined and enlightened people, we should come out boldly on this awful evil. I tell you, it's one of the greatest causes of greater sins and poverty. People here are too poor to hardly get their salt, and yet pay \$5 to \$30 per year for this worse than useless weed, besides the awful example. I have reasons to denounce it, for it has about ruined one precious boy of mine. I speak plainly. Rum is the Devil, and Tobacco his wife, and they have a big family of children, both old and young.

Since reading Mrs. Ratcliffe's valuable article on the evils of tobacco, I have felt like shouting. Thank God, she dares speak out for the good of the world. I have proposed a tobacco pledge in the temperance pledge, but I have met such opposition by tobacco-users that it is of but little use. I am convinced that the appetite for rum is stronger by using tobacco (though I never used either), but—eyes can see. We have a new law here, forbidding its sale to boys under 16, but the desire to sell and the desire to use are so strong it will go about the same. The use of it is on the gain, and will be till the whole people take hold to put it down. But very few dare speak against it, and yet many users are honest enough to denounce it; but, by their fruits they are known.

Isn't it one reason of the cause of Christ being so slow, our church people indulging in this soul and body depressing, useless weed? I won't judge any one, but it seems to me this is a great appearance of evil; and is it not leading our precious

young boys—yes, and girls, astray? You know the best are always chosen as examples when one means to excuse a sin or bad habit. Such and such persons are sited; thus such are far more responsible than those who do not profess better things. It's a sad sight to see 7-year-old boys, with a sickening cigar, walking the streets. Who can come up and say it's all good? and who is going to chide these for so doing? Not the ones who sell it—no, for they tell us there is a big profit on tobacco, and that they couldn't do business if they didn't sell it. Doesn't the rum-seller say the very same thing? Are we as human beings willing to succumb to such ruinous courses? How easily the sale of this poison has crept into all or nearly all the grocery stores, and Christian traders too. Well, many come up and assert, that, if they don't sell it others will. I may say if I didn't rob some one, some other person would. Oh! I ask again, isn't it late enough already for even a few to fight this evil, and be a crank or a fool for Christ's sake?

Hallowell, Me.

E. P. CHURCHILL.

What you say is *excellent*, but I think all of us will have to be a little briefer, as we say in the prayer meetings, to make more room for the new converts. Just listen to them now, and see if you do not agree with me that their testimony is more inspiring than whole sermons from our most learned divines.

I need a new smoker, and I have decided to quit the use of tobacco entirely. If you will send me a smoker, if I ever use tobacco again I will pay you for the smoker.

CHAS. CRANING.

Courter, Ind.

Please find two more claims for the bee-smoker. Mrs. Fannie Bitticks says she has been using tobacco for 20 years. I gave her a few copies of your journal, and she read the same; and when she came to the Tobacco Column she said she would quit too for a smoker, and she quit. If you will send her the smoker I will see that she keeps her pledge; and if she does use it again I will send you 75 cts. for the smoker. Also please send a smoker to Mrs. Bill Ealey, Hickory Creek, Ark. She, seeing your offer, has quit the use of tobacco for a smoker. I will see that she keeps her promise.

Ozan, Ark.

J. W. TAYLOR.

May the Lord bless you, friend T., for your labors, especially as you have made such a start among the women-folks. If "the hand that rocks the cradle is the hand that moves the world," just think what the result of your labors may be, in view of future generations. We notice still another convert of yours in Anthony Clark, a little further on.

PAYS FOR THE SMOKER, BUT HAS QUIT THE USE OF TOBACCO AGAIN.

Please find inclosed 38 cts. for Terry's A B C of Potato Culture, and 70 cts. for the smoker I got on the tobacco pledge. I broke it, but I have quit again, and I hope I shall succeed this time, but I shall pay for the broken pledge.

Lynnhaven, Va.

G. W. READER.

Well, well, friend R., so you paid up for the broken pledge, and started out on a new one. May the Lord bless and sustain you, not only in giving up tobacco, but in being honest, and true to your word. If anybody

should ask me which is the worse of the two evils, to tell lies or chew tobacco, I should say that telling lies is, by all odds.

WHAT A TOBACCO-DEALER THINKS OF THE USE OF THE WEED.

Though I am still in the cigar business, and have been for many years, I think you are right in discouraging the use of tobacco in any form, with all your might. If tobacco and whisky could be entirely eradicated, the world would be benefited almost incalculably.

S. F. HERMAN.

Tuscaloosa, Ala., Jan. 16, 1889.

Why, may the good Father help you, friend H., to go a little further and practice what you preach. I do not really see how you can hand over cigars, with a clear conscience, after giving such testimony as you have above. I am sure you can not do it very long. My impression is, that the cigar business will be given up before these words reach your eyes. Please drop us a postal card and tell me if I have not guessed right.

I read GLEANINGS at Bro. Taylor's; and with the influence of your offer, and that of Bro. Taylor's, I quit chewing tobacco. Now send Bro. J. W. Taylor the smoker, and if I ever use it again I will pay you for two smokers, and Bro. Taylor will go my security.

ANTHONY CLARK.

Ozan, Ark., Feb. 14, 1889.

Three cheers for Bro. Taylor, friend C.! I believe in that kind of signing for your neighbors, every time, for it is a signing for Christ's sake.

ONE WHO HAS USED TOBACCO 27 YEARS.

A brother-in-law of mine, A. W. Banebrake, of this place, has quit the use of tobacco after being a slave to its use for 27 years. He has not used it since the 5th day of November last. He is a beginner with bees; has 5 or 6 colonies. He says if you think he is entitled to a smoker, send him one; and if he ever uses the weed again he will pay you for it. I will also go surety for him.

F. M. SHELL.

Yeddo, Ind.

And may God bless you both, friend S., for your practical way of working together. We gladly send the smoker.

I received your letter, stating that you would have to put my name in GLEANINGS in order to send my brother a smoker. I am perfectly willing you should do so; and if he ever uses tobacco again I will pay you for the smoker.

CHAS. A. PRAY.

East Lebanon, Maine.

Why, friend P., it seems to me as if God were opening up a new work for us in this issue—going security for a brother.

HAS COMMENCED TOBACCO AGAIN, BUT PAYS FOR THE SMOKER.

Inclosed please find 75 cts. for a smoker, which I got from you nearly three years ago for my son to quit the use of tobacco. He has since commenced to use it again.

HENRY L. WEISS.

Berkeley Springs, W. Va.

That is a good testimony too, friend W. Set the example before the younger ones, of promptly paying up according to promise, for such testimonies are valuable, as well as the words from those who first take the pledge.

In reply to your letter about the smoker, I would say that my friend would not let me send his name for publication, saying he did not want it published to the world that he had stopped using tobacco. I do not know that it was entirely through GLEANINGS that he stopped, but I have lent him numbers to read, and I suppose they influenced him. I did not know that you required the name of the person making the pledge, if he was not a subscriber. As he will not let me send his name, and that is the rule, I would by no means send him a smoker. He does not deserve it, he is so cowardly.

East Sydney, N. Y.

LESTER JUDSON.

Do not be too severe on your friend. Our clerks, it seems, have been a little at fault. Your friend need not give his name at all unless he chooses (although I do think it a much better way), providing somebody like yourself will give his own name and go security for his friend. This Tobacco Column seems to be pretty much all in line of "I am my brother's keeper."

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

AIR-SLACKED LIME, APPLIED TO THE SOIL, AN AN INSECTICIDE.

ON page 235 of our issue for March 15, I mentioned the use of air-slacked lime as a preventive of club-root in cabbages, and I also made mention of its property of killing angleworms, etc. I believe it has been well known to gardeners, that lime-water, even a good deal diluted, is sure death to angleworms in pots; and I have found that, say, ten barrels to the acre will kill almost if not all of the angleworms in very rich, highly manured ground for market-gardening or for strawberries. Now, friends, I am pretty sure there is something better still, right along in this line. This spring our plant-beds were all treated to a pretty liberal application of guano and lime. They were sifted on to the ground, and raked in, while the mixture gave off a strong smell of ammonia. Well, so far this spring we have not seen a single specimen, on these beds, of the little "jumping jack," or cabbage-beetle. It is the same insect that damaged the *Rural New-Yorker* folks in their potato experiments; and we have pretty good authority for saying that the larvæ of this same insect causes the club-root in cabbages, and spoils our radishes. Who has not tried to raise radishes, and found them so scarred and disfigured, and even eaten up with minute maggots, that the crop was a failure? Well, radishes raised on our plant-beds have perfectly bright, smooth leaves, with not a scar from the jumping jack, and the roots correspond exactly. There is no such pest in our plant-bed grounds; but up in our swamp, where we sowed some radishes in the peat, the jumping jacks are just as bad as they ever were, and more than half of the radishes are eaten up outright. Now, if air-slacked lime, put on strong enough, kills the larvæ, and thereby banishes the

mature insect, why will not the lime, if used strong enough, destroy *all* the bugs and insects that harbor in the ground? Prof. Cook will have to help me out here; but I am pretty sure that the striped melon-bug, and perhaps our potato-beetles, may be greatly injured if not banished by using plenty of lime. I know they come out of the ground, because I have seen them come up under my plant-boxes. The office of the lime, in liberating ammonia from any heavily manured ground, I think will recompense all it costs. Our plan is to spread the lime with a manure-spreader, after the ground is plowed and harrowed, and then harrow it again, to mix up with the soil. We have never seen plants injured by lime, no matter how strong we put it on—that is, where it is thoroughly pulverized and raked into the soil to a considerable extent. I want Prof. Cook, and W. J. Green, of our Experiment Station, to tell me if I am not at least partly right in this matter.

SENDING OUT COMMON WEEDS AS NOVELTIES.

While I am exceedingly glad to notice the energy and zeal with which our seedsmen bring out and have tested every thing new and valuable in the vegetable world, I do feel like uttering a vehement protest against the dissemination of weeds, especially where they are of little or no value. I have just now in mind the "upland water-cress," advertised in many of our seed catalogues. As we have not a running spring suitable for water-cress, I hailed the advent of an upland cress with much joy. They were started in the greenhouse, and a long row, put out in my best ground, only to find, when they arrived at maturity, that they are exactly the same thing as a weed that is found all over this vicinity, and has been for years. It seems to be a sort of cross between horseradish and wild mustard. It tastes more like horseradish leaves than anything else. The leaf is rounder, more like mustard. The root has no flavor like the horseradish at all, and I have never found anybody who cared to eat the tops at any stage, as a substitute for water-cress. If you ask what seedsmen I am driving at, my reply is, every seedsman who advertises the upland cress. You may say that he doubtless supposed it was all right. Well, my friend, I do not think that any seedsman has any business to advertise anything he has not first *tested* on his own grounds. If he has not any grounds to test things on, then I should say he has no business being a seedsman.

QUESTIONS ON CARP-RAISING, ETC.

What is the commercial value of carp, if any? How many can be raised in a pond covering one acre, if well cared for? Will they smother in winter from ponds freezing? The same questions in regard to catfish, if you can.

Is Japanese buckwheat honey-producing?

Topeka, Kan.

H. G. LYONS.

Our new book gives you all the information we have in regard to the ponds you mention; but I might answer briefly, by

saying that you can certainly raise as many pounds of carp on an acre as you could of chickens; and they are worth in the market certainly as much for food. At present I believe they bring a little more. The carp will not require any thing like the amount of care that chickens do; and I think I am correct in saying nothing like the amount of food. They will not smother in winter from ponds freezing over. We can not answer in regard to catfish. — Japanese buckwheat produces probably just as much honey, if not more, than the common kind. You must remember that all varieties of buckwheat, as well as every thing else, for that matter, that yields honey, are liable, under certain conditions, to give none at all, even though the fields be white with bloom.

RASPBERRIES AND POULTRY, IN CONNECTION WITH BEE CULTURE.

I send you a sample of ensilage from a kegful that I packed for my poultry. I had been wanting to save something of the kind for years for the long winter season, so as to help make a variety for them. The article I saw in GLEANINGS, about ensilage, last summer, stimulated me so that I put the idea in practice. I often wanted to save cuttings from a lawn, for they looked so sweet, and are about the right size for a mouthful for a hen. I shall try saving some next year. What I send you is raspberry leaves stripped from the cuttings of my bushes in the fall. They have a very sweet-smelling flavor, and I hope there will be a little left in the sample I inclose, after the journey, so that you will know how sweet they are. I made only one kegful for an experiment. It was a honey-keg capable of holding 200 lbs. I stripped the leaves off in the garden into a bushel basket. I must have put fully 15 bushels into it. I kept a weight of about 150 lbs. on them as I packed them. This weight kept me filling up a little every day for a few days, and they were pressed so tightly that they excluded the air, which I believe is all that is necessary for their preservation. Some of the leaves were half dry with the sun, while others were quite green. I was careful, however, not to put any in while there was any rain or dew on them. They were a little musty on top, but I believe that the rest of the keg is as sweet and nice as the sample sent. I usually scald it, putting a handful or two in the water that I boil or scald the ground feed with. I do not know of any thing better that can be combined with poultry than bees and raspberries. The best raspberries I ever had were picked from bushes where poultry had been allowed to run until the fruit was nearly ripe. They keep down the suckers, and the strength seems to go all to fruit.

Manistee, Mich., Jan. 12, 1889. WALTER HARMER.

The raspberry ensilage came to hand in nice shape, and is just as you describe it. I know that it is very important that poultry have some sort of green feed in the winter time; and I do not know why your ensilage will not fill the bill exactly.

ANOTHER WAY OF PRICKING OUT CABBAGE-PLANTS, ETC.

My way of pricking out cabbage, tomato, and celery plants from the seed-boxes into others a little apart, is to tilt the one end toward me on some block, at an angle of about 45°, and commence by

placing a layer of earth $\frac{1}{2}$ inch or one-inch, as the case may be, on the lower end, making it smooth and even; then lay a row of plants any desired distance apart on this, pressing them in with the left thumb to make them stick; then another course of earth, etc. At the last, begin at one side and bring the single row across. I can spread the roots, put them any depth desired, do it quicker, and I think nicer, than with the dibber.

ANOTHER WAY OF BANISHING THE "JUMPING JACK."

To prevent jumping jack from eating the first leaves of cabbage, turnip, etc., put about a tablespoonful of spirits of turpentine to 1 lb. of seed, stirring it well so that all seeds come in contact with it. As a farmer, who used it in turnip-growing, said, after they are up, pinch them between the thumb and finger and they smell quite strong. It seems quite reasonable, too, as the seed of this forms the first pair of leaves. I have not tried it, as it was too late last year when I heard of it.

Minesing, Ont., Mar. 22, 1889.

THOS. STOKES.

The turpentine may answer, but I believe I would rather take my chances by raking into the soil a good lot of quicklime, as I have already mentioned.

THE IGNOTUM TOMATO, AGAIN.

Your articles in regard to the Ignotum tomato, I read with great interest, as I have 465 seeds of the same kind. When our State fair was at Jackson last fall I noticed a beautiful plate of fine tomatoes in the exhibit of the Agricultural College. I was informed by the manager of the exhibit that they were originated at the State Farm; and, being deeply interested in the different garden plants, and especially in tomatoes, I asked the gentleman for one so I could have about the first plants outside of the original; but I see you have the start of me, and I guess you and I are the only ones now who have any seed direct from the stock grown at the Farm. By the time this reaches you I shall have part of mine planted for extra-early plants.

A. D. D. WOOD.

Rives, Jackson Co., Mich., Dec. 31, 1888.

And so it transpires, friend W., that somebody besides myself has the Ignotum. Well, it will probably be pretty thoroughly introduced another year, for we have already given away several thousand packages to the readers of GLEANINGS.

SWEET POTATOES, LEVEL CULTURE.

While the sweet-potato topic is up, I rise to state that, on loose prairie soil, it is labor worse than wasted to ridge up the ground for planting sweet potatoes. Level culture for corn, Irish and sweet potatoes, is the successful practice here, where hot dry weather can be depended upon. The sweet potatoes do not grow so long, but are larger, every time.

M. S. BENEDICT.

Crete, Neb., April 6, 1889.

I think the above depends both on the soil and season. In our locality, especially when we have as much rain as we have had for the two past seasons, the hilling-up seems to answer better for almost every thing; that is, where the hill has a broad top. This top then catches all the rain that is needed, while the furrow lets the surplus water off before our clay soil settles down so hard that it bakes like a brick.

THE "BUSH LIMA BEAN" BUSINESS.

At the present writing I have not been able to secure even a single paper of the Kumerle bush lima bean. Very likely somebody has forestalled me. I am going to have a few, however—see if I don't—even if they do cost "awful." The yellow bush lima bean, mentioned in our last issue, page 279, as coming from Minnesota, proves to be, when cooked—that is, in a dry state—just like common bush beans—no lima taste about them. It is simply a yellow bean, a little flattened in shape. Perhaps when green, however, they will taste much different—we hope so. We are going to plant largely of Henderson's bush lima bean. This, it seems to me, is certainly an acquisition; and until we can get a big one we had better make the most of this. Very likely it is earlier because of being so small, and quite likely more productive—that is, it will yield more bushels to the acre. A 25-cent package of these beans will be mailed to every subscriber of GLEANINGS who pays up all past dues to the present time, and sends us a dollar for a year ahead. Please make arrangements during the present month, if you want them, for we expect to plant every bean left in the 1000 papers, by July 1.

WHAT IS THE BEST LAND FOR ONIONS?

What is the best kind of land for raising onions? Will salt, sown on land before sowing onion seed, be useful? If so, how much would you advise me to sow to the acre? I. JACKSON.

Eau Clair, Wis., Feb. 19, 1889.

Friend J., almost any land will raise onions, providing it is made fine enough and rich enough. On some soils, salt seems to be of some benefit; but I would by no means think of investing heavily in salt until you have tried it on small patches, enough to be sure that it does good. I think you had better invest in our book on onion-raising.

THE KEROSENE EMULSION FOR APPLE-TREE BARK-LICE.

In regard to the bark-louse, I tie bits of soap on the limbs, and the water and snow wash the soap down over the insects gradually. DR. MARTIN.

Mercersburg, Pa., Jan. 29, 1889.

Friend M., tying pieces of soap in the trees would be a comparatively easy matter; and it seems to me quite likely it might answer the purpose. I presume all you need to do is to put some soap on the limbs you find visited by the bark-lice, taking pains to have the soap higher up than the insects have yet made their way.

SQUASH-BOXES; TRANSPLANTING-TUBES, ETC.

I am a farmer and apiarist, and pride myself on having a good garden. We need in this climate an extra-early tomato and watermelon. I succeeded last year, when my neighbors failed, by using the squash-boxes which you described in your seed-catalogue. They also saved my pie-plant and asparagus from a late freeze. The way I get early tomatoes and cabbage in the last transplanting, I put them into an old tomato-can; and when ready to set out I cut the bottom out and set can and plant in the ground. This also protects the plant from cutworms.

N. P. ASPINWALL.

Harrison, Minn., Mar. 24, 1889.

OUR HOMES.

By this shall all men know that ye are my disciples, if ye have love one to another.—JOHN 13:35.

AFTER dinner it occurred to me that I had better go and have my boot mended. You may be a little surprised to think that I had been off all that forenoon, wearing a boot with that great gash. Well, to tell the truth, I was in such a hurry to get off into the fields and mountains that morning, I did not think much about my boot. It did not gape open quite so wide on Monday morning as it did on Sunday afternoon. The fact is, I rather forgot about it. When Satan suggested that it looked awful, and that I really must go and get a shoemaker, and insist on his doing so much work on Sunday as a case of necessity, it looked very bad—in fact, exceedingly bad. But when I turned squarely around and shook my fist at him (not the shoemaker, but Satan) and said with energy, "Get thee behind me, Satan," he went away and did not trouble me any more. But I did think, before I started to travel on the cars again, the boot must be mended. I found a very pleasant-faced, elderly man, surrounded by his lasts and awls, right across the corner from that little stone Congregational church. I thought at first I would sit down and talk with him while he mended the boot. Then I began to think I wanted one more drink from those effervescing springs. The shoemaker kindly loaned me his shoes, which were a great deal too large, and I started for the spring I first drank from the day before. The water was very much improved—at least it seemed so, and I liked the people and the surroundings better too. When I got back, my boot was neatly finished. When I remarked that I had been up to the Ute iron spring, the people at the shop thought it incredible.

"Why, mister," said the man of the lasts, "it's almost a mile, and you have not been gone over fifteen or twenty minutes."

I then told him of my tramp of the forenoon; but I did not tell him how awkward and inconvenient his great big shoes were on that last tramp. A bystander remarked, "Why, he is almost a match for Jim —."

"What feat did Jim — do, pray, in the way of walking?" said I.

I don't remember exactly what it was, but the landlord told me of a young man who one summer went to the top of Pike's Peak on foot in one day, and came back down in the same evening, 26 miles in all. My boot was mended very neatly, and the charge was only 15 cents.

"Why, look here, my good friend, you must be a Christian to do as nice a piece of work as that, and charge only 15 cents," said I.

"You are mistaken, stranger. I try to do my work well, and to charge just about what I should like to pay if somebody else did the same work for me. But I have not been inside of any church for more than twenty years."

He said it, I thought, a little sadly, and

yet there was that beautiful little Congregational church right across the corner. I told him, in my poor way, that one who was trying to do by his fellow-men as he would be done by, as he had expressed it, I felt sure would rejoice in being among Christian people. I told him, too, that I had felt hurt and pained when the livery-man close by told me he wanted \$2.50 for a horse and buggy for only two hours. Now, perhaps I am a little uncharitable toward livery-men, and may be toward some of the hotel-keepers. It is said, that, in the winter time, when they have but little custom, they have to charge large prices for what they do get, in order to pay the expenses of keeping up an establishment; and I believe it is true, as a rule, that livery-men and those who run conveyances to and from pleasure-resorts are seldom God-fearing people. It would seem as if it were the most proper thing in the world to find God-fearing men and women to wait on those who come to view, visit, or enjoy nature's wonders in the way of mountain scenery, rivers, lakes, caverns, and the like. In regard to this matter of having nothing to do in winter, the problem is much like the one bee-keepers are obliged to solve; and I think it would behoove the hotel-keepers and the livery-men, who minister to tourists and pleasure-seekers in summer time, to make some other arrangements for men and horses during the rest of the year, and thus make prices moderate. Our rural friends, many of them, feel as if they had been outraged when they are asked to pay a dollar for a meal of victuals while potatoes bring only 20 cents a bushel.

Now, before bidding good-by to Manitou I want to ask my good friend the Congregational minister to make a friendly call on my friend the shoemaker; and may be he can take him a bee-journal if he thinks best. I wish he would also have a little friendly talk with the boys who board at the Mountain View Hotel, and may be they will be interested in looking over what I have written. I would suggest that he get on a friendly footing with the folks in the livery-stable. May be, however, it would not be best to give them a bee-journal, for it begins to occur to me that perhaps I have been a little uncharitable toward them; but when Christian people prefer not to pay the prices charged them when traveling, it is certainly their privilege to go on foot, as did your humble servant. Yes, I am not sure but we can perhaps go on our way afoot, with more genuine earnestness and zeal, than in the finest equipage. Now, we must be careful about a want of charity again right here, for it is not every one who has been blessed with strong limbs and energy to do it, as does your friend A. I. Root. If you do enjoy walking, dear reader, and are equal to the task of walking several miles on a stretch, then go this minute, if you have never done so before, and thank God that he has blessed you in this way.

Dec. 18.—It almost makes me feel sad to think the mountains are behind us, and I am told we shall see them no more. To-day, through Nebraska we have little be-

sides mammoth cornfields, and corn-cribs to match—the latter piled full of corn, but no roofs. Huge piles of corn are also seen in the fields.

What an uncertain thing "daily bread" is, in traveling! uncertain in expense, I mean. Last evening I thought to save expense by going to the lunch counter; but a turkey-leg, cup of coffee, and a piece of pie was 45 cents; and as I felt hungry still, I afterward, at another place, got a dish of oysters and a glass of lemonade, 45 cents more, or 90 cents in all, when the regular supper would have been only 75. Economy on the wrong side. At Wymore, Nebraska, I decided to patronize a one-armed soldier, and, taking a lesson from yesterday's experience, I ordered only a dish of baked beans, and coffee. He dished out so many beans, however, that I mentally figured that I was out about 45 cents, or pretty near it, again; but to my great surprise, it was only *ten cents* for the *whole dinner*. This man has a dinner-gong that goes by clockwork, while he, with *one arm*, waits on a dozen customers. I gave him some words of encouragement. What a field is here for practical Christianity! In the large city of Denver, in their large fine depot dining-hall, they charge only 50 cents for a meal. Why can not smaller towns on the railroad do as well? Another thing pleased me: Adjoining this fine dining-room, and in a conspicuous place, was a fine bath-room, close by where trains stop and start out, so passengers, while waiting for a train, can wash thoroughly all over, for *only 25 cents*. Good for Denver!

Near Burchard, Neb., the corn-cribs are several hundred feet long, and the heaps in the field are immense. Thousands of stacks of hay are also scattered over the fields. I am very sorry to notice a good many *mowers* and *horse-rakes* also. Loads of corn, and still larger corn-cribs, are now seen. A man says they get only 20 cents a bushel at the stations, and a lady says some are burning it for fuel. It makes a very hot fire, and one man melted his stove down and burned up his house by firing up too strong with *corn*.

Near Kansas City we strike the Missouri River. It is by all odds the largest river I have seen in my travels *west*—that is, rivers with water in them. I have seen plenty of immense rivers in the great West, but they lacked water when I saw them. From Jefferson City to St. Louis, the broad Missouri River occupies and covers a vast extent of land; but it seems to be, like a meadow brook, continually washing away the bank, first on one side and then on the other. The consequence is, that sometimes miles of drifting sand are interspersed with bushes and clumps of willows, indicating where the river has been at some time, while the running water may be found to have a channel less than a quarter of a mile wide. Judging from the growth of willows and weeds, this bottom land must be wonderfully fertile. It is probably, however, so liable to overflow or wash that nothing has been done with it. If this great sluggish river could be made to take a straight line, and

keep within bounds, vast tracts of the finest land in the world, it seemed to me, might be brought under cultivation. It makes one sad to look over the great barren wastes. Very often the river divides so as to leave islands of large extent in the middle of its bed. It made me think of the great Yellow River in China, that has, by depositing its sediment, and washing one way and then the other, made such havoc with human life. It seems to me one of the greatest things that the world needs at this present time is engineers who are capable of managing our great rivers. I am sure the money could be easily brought forward if we had men with brains, to expend it in the right way.

I am now nearing home, after almost six weeks' absence. Again and again have I dreamed of being back with the loved ones. Once, especially, the rejoicings of the whole family, little and big, were so like a reality that I felt troubled, and assured them there was some mistake.

"What mistake, and how?" asked my wife.

"Why, I am sure this is a dream, for I have not finished my visit. I am *still* in California."

At this there was a shout of merriment from all. As it closed she replied:

"But, *who* is dreaming, my dear husband—*you or ourselves?*"

"Why, I think it must be you, for I *know* I am in California."

Then they all laughed louder and harder.

"We, then, are only 'phantoms of the night,' are we, while you are all right? Look here, sir!" and in a saucy way she came close up to me. "Am I 'thin air?' Am I not a flesh-and-blood reality?"

Of course, I put my arms about her while I replied:

"Yes, you are, and always have been a blessed 'reality' to me," and then while the children applauded, evidently considering it a fine tableau, commenced one of nature's "dissolving views." My home began to grow dim, and fade away; and faster than railroad cars—yes, faster than even the *lightning* can travel—I was borne over desert and mountain, setting thousands of miles at naught, until I rested again in my bed in that cozy room on the mountain-side. But, hold on! One part of that Medina home did not dissolve, for I hear the children's merriment even now.

I raised myself a little in bed. By the dim light of the moon I recognized my surroundings, and remembered going to bed the night before—yes, and even got a glimpse of the little Bible that I was reading in the last thing before I went to bed, as it lay there on the pretty little stand; and vividly the text, "But whosoever shall drink of the water that I shall give him shall never thirst," came back to my mind. I am here in California, just as I declared I was; but what in the world *can* it mean—this sound of merriment and laughter that greets my ears even now—yes, merriment because I so stoutly insisted that I was in California and not at home? Have the real and the unreal become so mixed up that I can not tell positively whether I am asleep

or awake, or has that old fancy that has haunted me in my dreams from childhood, of setting time and space at naught, come true? After I had rubbed my eyes a little more, and after I had listened a little more intently to the sounds of the voices, I discovered that it was not Ernest and Maud and Connie and Caddie and Huber, after all. It was the children I had talked with the night before, in this mountain home. As the good mamma of the household was obliged to get up before daylight, they, childrenlike, wanted to get up too, and had been having their fun while I was sound asleep and dreaming of home.

At the breakfast-table, as I related the above, one of the friends remarked:

"Well, you came out ahead. You, after all, *are* in California." And I hereby give my wife, and all the rest of them, notice, that I was right and they were *all wrong*.

Dec. 19.—How good it seems to see fenced fields again, and to see every one occupied with something! Outside of Kansas City, toward St. Louis, even the small towns seem full of thrift and enterprise. The tall chimneys are sending out clouds of smoke, and little engines, scattered in the suburbs of the towns, commence *early in the morning* to send out puffs of steam. This is what I longed to see in many of the California towns. The houses along all through Missouri are well built, substantial, and pleasing in appearance, and this is true of country as well as town.

Dear readers of GLEANINGS, my long trip is ended. Those six weeks, even though away from home and friends, were six of the happiest weeks I ever spent in my life. One thing that specially contributed to make them happy, was that it was my privilege to have you enjoy them with me. I know you have done so, because of the great numbers of kind letters that have come from you in regard to those travels. I prayed as I started out, that God might help me to make the trip profitable for "Our Homes" and "Our Neighbors." and I feel like thanking *you*, for it was through your kind support that I have been enabled to make such a trip. Several months before I started, I felt that God was calling me to that kind of work. I told my wife I knew I should enjoy it, for it was, in one sense, a duty. Do you ask, why not go again, and inform my readers in regard to other countries and other localities? Providence permitting, I expect to go again after a while; but just now I am needed here. Yes, at this season of the year there ought to be two or three A. I. Roots instead of only one. In another part of this number I have been trying to tell you why I am needed at home just now. Many kind words are written to me, to which I can not reply; yes, and quite a few complaints that my old friends have not had exactly the kind of treatment they have a *right* to expect from me are unanswered. Others who are taking my place have answered them as best they could; and yet I know very well, that, at least for some time to come, no one can understand these friends I have known and loved for years, as I understand them myself. But

be patient, friends, for John and Ernest are every day learning more and more to take my place, and to know you as I have known you. It is not altogether things that dollars and cents will make right; but when you feel as if you had been neglected and ignored, do not, I pray you, feel uncharitable. At this season of the year I have steadily refused to go anywhere, even for a single day. I have even refused to talk and visit with my intimate friends and relatives, in order that I may use all the strength I have, to do by you as I would be done by. Sometimes I long to give up business, and not try to look after things as I do at this season of the year. But this feeling is wrong, I am sure. Sometimes I am told that I won't last long at this rate. So far as I am concerned, I do not know that I care so *very much* about a long life; but if by prolonging my life I can be of service to my fellows, then I want to live. If I can contribute to your happiness by living, and if I can, by influence and example, or by working when I am tired and fatigued, be able to lead some soul to "drink of the waters" I have been telling you about, then I am glad to live and glad to work.

During those six weeks while I was away, I felt remarkably free from temptation of any sort. No one vexed me, that I know of, and I did not feel tried with humanity, as I often do here at home. I met wickedness and sin; but God helped me to meet it with more calmness and courage than I do here. It would not be right or well, however, if I should spend much of my time in a life so free from care. The thought that I had *earned* my vacation and holiday helped to make me happy; but real life must be, for the most part, in the busy throng. When Jesus prayed for his disciples, just before he was about to leave them, his prayer was, "I pray not that thou shouldst take them out of the world, but that thou shouldst keep them from the evil." And so it is with us all. Christ's followers are all needed in the world. Where humanity throngs thickest and busiest, there they are needed most. "Ye are the salt of the earth;" and therefore, dear brothers and sisters, let us be content to labor on, especially while it is not for selfish ends that we are bearing toil and care and sorrow, but for humanity's sake and for Christ's sake.

By this shall all men know that ye are my disciples, if ye have love one to another.

A VISIT TO BEE-CELLARS IN NORTHERN OHIO.

ERNEST OFF ON A RAMBLE—CONCLUDED.

MR. BOARDMAN, like a good many other prominent bee-keepers, uses a square frame, the dimensions of which, if I remember correctly, are $4\frac{1}{2}$ inches inside measure, square, this size being adapted to nine $4\frac{1}{2}$ sections.

"Then you think you prefer the square frame?" said I.

"I do, sir, on account of the compactness of the brood-nest, both for brood-rearing and for the concentration of warmth while

in winter quarters. And then, again, when two of these hives are tiered up, the upper set of frames is just right to handle in a standing posture. With your Simplicity or Langstroth frame you are obliged to stoop a little more in the manipulation of the frames."

"Yes, that is true," I replied. "But then, for comb honey don't you think you lose some advantage in not having a shallow frame—that is, shallow enough to bring the brood nearer the surplus apartment?"

"Yes, there is something in this; but I think this is more than offset by the advantages of the cubical brood-nest in winter."

I noticed that, when he turned up some of the hives, the frames being so deep, some of the bottom-bars touched together, while a wide space was left between the adjoining bottom-bars. Mr. Boardman admitted that this was true too, but he did not seem to think that it made very much trouble.

On our way homeward we talked about contraction. Mr. Boardman's method of contraction is not to reduce the number of brood-frames, but to cut out the combs. To prevent the bees from storing honey in the brood-chamber he leaves on an inch or so of comb attached to the top-bar. As the bees build this downward, the queen fills them with eggs, and, as a matter of course, the honey goes into the sections. With most bee-keepers this would be considerable of a job, I imagine; but as Mr. Boardman uses a side-opening hive, he simply removes the loose side, slices off the combs, replaces the side without removing the cover or surplus arrangement. The plan is quite similar to the one outlined by Samuel Simmins, and later by W. Z. Hutchinson. Mr. Boardman has practiced this method of contraction for several years, and he thinks it is by all odds the best method. After supper that evening we got so interested in conversation, the special topic of which I do not now recollect, that, before we were aware of it, the train which I had intended to take came in, and I half a mile away, enjoying the hospitality of my friend. Well, there was no help for it, and so I waited till morning, and then Mr. Boardman kindly drove me back to Norwalk with one of his out-apiary horses, where I joined the junior Mrs. Root, or, putting aside stiff conventionalities, Elizabeth. Be sure to put the accent strong on the last syllable, if you want to get my method of pronouncing it. I regret now that she could not have made the acquaintance of the genial Mrs. Boardman, who, by the way, is not only a bee-keeper's wife, but a bee-keeper herself.

I feel now more than ever the importance of getting out and knocking off the corners. I discover in our correspondence that a great many bee-keepers have set notions. To stay at home with some of us means to get into old ruts. One of the benefits of conventions and of personal visits, as I regard it, is the breaking-down of old prejudices. I believe I am a broader man—certainly a broader bee-keeper—since visiting friend Boardman. While I do not feel convinced that indoor wintering would be better for us, or that the square frame would

be better adapted for the majority of bee-keepers, I see *more* of their merits than ever before. I mean to try his plan of wintering this year, and shall try it alongside of the chaff hives for comparison of results.

GLEANINGS IN BEE CULTURE.

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A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

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MEDINA, MAY 1, 1889.

Henceforth I call you not servants; for the servant knoweth not what his lord doeth: but I have called you friends for all things that I have heard of my Father I have made known unto you.—JOHN 15: 15.

GIVING THE PLACE OF PUBLICATION.

SEVERAL of our correspondents, in sending us clippings from other papers in regard to the alleged adulteration of honey, have failed to give us the address and the date of the papers copying such extracts. We are glad to have these clippings sent in to us, but we can not do very much unless we know the address and the date of the paper.

THEIR WEIGHT IN GOLD.

I WILL give their weight in gold for an ounce of Kumerle's lima beans, such as were advertised and sold by J. B. Thorburn & Co. They must be in Thorburn's envelopes, or I must have satisfactory proof that they are exactly the same that Thorburn sold. I purchased one package before his supply was exhausted, so I think I am prepared to know the genuine when I see it.

200 TONS OF HONEY SOLD.

COMMISSION firms in California handle a great deal of honey. One of them, Messrs. Lacy, Bailhache & Co., of San Diego, Cal., write us that they shipped, during 1887 and 1888, over 200 tons of honey; but as the two years preceding were poor ones their sales are usually much larger. They are making an effort to get bee-keepers to adopt the one-pound section, as they say the demand is strongly in favor of that size.

ISRAEL'S POEM—SEE PAGE 254.

BY an error of the compositor in the misplacement of the pages, some of the lines of the poem entitled "The Starving Colony" were a little out of their regular order. To get the connection right, read the first ten lines; skip eight lines; read eight lines more, then go back and read the eight lines skipped. We say this in justice to Mr. Israel. Our more critical readers may have noticed the apparent disconnection.

THE CANADIAN BEE JOURNAL AND POULTRY WEEKLY.

VOL. V. No. 5 of the *Canadian Bee Journal* has shed its tinted cover, and added in its stead eight extra pages. Half of the journal is devoted to bees, and the other half to poultry—the latter department being edited by W. C. Peter, an extensive breeder, and authority on all matters pertaining to

fowls. Altogether we think the change is an improvement, and we trust that the added subscriptions from poultry-fanciers will more than pay for the extra expense of getting out the journal. Success to you, brother Jones, in your new venture.

DOVETAILED HIVES POPULAR.

THE new hive seems to be filling a "long-felt want," as the fellow said. Orders for tens and twenties are coming in at a rapid rate; and it is really surprising what a wonderful demand has sprung up in the short time they have been advertised. Messrs. Schlichter Bros. & Co., of Burnside, Lapeer Co., Mich., have ordered 300 No. 2 Dovetailed hives in one order. We have already used up one carload of lumber for these hives alone, and have ordered another. This hive, it should be remembered, is not a new thing, but an old one that has been in use by practical bee-keepers for a good many years. The times being ripe, it has met with a hearty reception.

SWEET-POTATO PLANTS RAISED ACCORDING TO A "MULTITUDE OF COUNSELORS."

WELL, friends, *our* bed is just splendid. It was built exactly according to directions; and as we did not have spare sash it has had no covering so far, except shutters; but as there have been several cold stormy days, rendering it necessary to keep the shutters on, the plants were getting too white to suit me; therefore we borrowed some sash from one of the greenhouses, and under the influence of more light they began to be more healthy looking. Very likely, however, shutters would have answered every purpose had the plants been started a little later; and, in fact, we now have plants big enough to set out, while it would hardly be safe to put them in the open ground for at least a couple of weeks yet; therefore I think that, in our locality, there is no very particular need of having any glass at all to raise good sweet-potato plants.

WHO IS TO HAVE A PACKAGE OF HENDERSON'S BUSH LIMA BEANS FREE?

WELL, in the first place I said that any subscriber who sent us one new name; then I said that, if it were too much trouble, send us a dollar for another year, after your subscription was out. Pretty soon the subscription clerk informed me that people were asking for lima beans, just because they sent a dollar to pay up or to renew. And then quite a few asked for the lima beans who did not pay up at all; therefore I think we shall have to put it this way: The lima beans are for those who send us the name of a new subscriber. If you can not get a new name handy, pay up all you are owing on GLEANINGS, and send us a dollar for a year ahead. If you have already paid up till next January, then send us a dollar now for GLEANINGS for 1889; or send us 25 cts. for one packet, or \$1.00 for five packets, or \$2.00 for a dozen.

CALIFORNIA HONEY.

OUR friend J. F. McIntyre sends us the following note, accompanied by the three samples of the honey he mentions:

MR. ROOT: I send you a little block containing three samples of honey. The darkest is fresh filaree honey. If I have not forgotten the flavor of soft maple, it tastes a little like it, and it takes the place of soft maple here. The clearest sample is sage honey evaporated in the big tank, and represents one grade of last season's crop. The other was evaporated by the bees.

J. F. MCINTYRE.

Fillmore, Cal., April 15, 1889.

The darkest, or filaree honey, was very fair. The flavor of the clearest sample of sage honey—that

evaporated in the big tank was very fine, with the exception that there was an after pungent taste in the throat not exactly pleasant to us. The flavor of the other sample of sage honey, that evaporated by the bees, was the finest of the three—the pungent taste mentioned in the artificially evaporated sample having been entirely eliminated. To see what others would think of it, we handed the three samples to three of our printers, not telling them which we thought best. We marked them so we could tell which were which. Two of the printers immediately decided just as we had, and another one did on further deliberation. There has been a good deal of discussion as to whether honey evaporated artificially is equal to that evaporated by the bees. If the test above made means any thing, it would seem to indicate that bees have got the art down a little finer than we have. To make the test a true one, the two samples should be put side by side.

THE COMBINED CRATE, IMPROVED.

We have just changed the combined crate, which we have sold for a good many years, so that it may be manipulated in every respect the same as the T super; i. e., it can be tiered up inside of a Simplicity body; can be used with or without tin separators, and can be emptied of its sections *en masse*. Unlike the T super, it is so constructed that the bee-space may be used either above or below the sections. Although we do not recommend it, the honey-board may be dispensed with, in which case the bee-space should be put *below* the sections. It will also take in open-side sections, which the T super will not satisfactorily. While retaining all the old features of merit, it is now made much more valuable than before. We make this statement so that all those who order the old combined crate may be advised of the change. The price of the combined crate will be the same as formerly.

A "FISH STORY" AND A BAIT FOR NOVICES.

FOR several days back, correspondents have been forwarding on to us circulars from F. Andrews, 328 West Madison St., Chicago. The circular bears the stamp of a "fish story." It advertises a new hive that will prevent swarming, that will set every idle bee to work, and that will store *twice* as much honey as any other hive made. Mr. A. further claims that it will cost nothing to keep bees, as they feed themselves; that a single colony will net from \$25.00 to \$60.00 per season. It closes up by offering to sell a book, entitled, "Secrets of Bee-keeping," for 15 cents. Bro. Newman, of the *American Bee Journal*, of course, was prompt to find out whether there was any such individual. In his last issue he says they have made four trips to the address of Mr. Andrews, but that he was "out" each time. A woman in an adjoining room said he was there only a few minutes each day, and that he expected to make a trip to California in May. Mr. Newman cracks his editorial whip over Mr. Andrews' shoulders in his following characteristic way. He says:

It is useless for us to caution any one, for our readers do not send "a nickel and a dime" for any "secrets" of bee-keeping. They know better. It is the "novices" he is after. The circulars seem to have been sent to postmasters, and by them distributed into the "boxes," to catch the unwary, and many \$3.00 and "nickels and dimes" for Mr. Andrews to go on a "trip around the world."

P. S.—Since the above was in type, we have the following from friend Newman:

FRIEND ROOT:—After some six special trips to Mr. Andrews' advertised place I have got a copy of his pamphlet, and mail it to you to-day. His hive is a Mitchell, and the extractor a Mc-

Dougall. In fact, the whole pamphlet is mainly a copy of McDougall's, published in Indianapolis twelve years ago. He told the person I sent that he had no hives on hand—and sold none this year, and said it would take 10 days to get one made. He is doing nothing. T. G. NEWMAN.

The book kindly forwarded us, as above, is a pretty fair bee-book for only 15 cents, only it does not fill the bill at all, according to the circular. The principal illustration is one used years ago by N. C. Mitchell. Mr. Andrews, however, has dug out the "N. C. Mitchell," giving the hive a botched appearance. From the back cover we learn that Mr. A. sells patent medicines, etc. The engraving of the extractor is one made for us years ago by Stillman & Co., of Cincinnati, O. The word "Novice" is got rid of by some means.

We have, at this date, 8626 subscribers.

SPECIAL NOTICES.

GOOD SHEARS AT A LOW PRICE.

If any of our readers are in want of a good pair of shears at a low price they will do well to examine our advertisement in another column. We have sold in the past 6 years about 150 dozen, and have just put in stock as many more. The last lot are much nicer than the former stock.

ADVANCE IN PRICE OF SUGAR.

Of course, at the present state of the sugar market we can not sell at the prices in our catalogue. At present writing the price is 2c higher, and liable to go still higher. It will doubtless be another cent higher before it goes any lower. This, of course, does not apply to maple sugar, but we haven't very much stock of this.

EXTRACTED HONEY FOR SALE.

Now that sugars are so high is a good time to close out old honey at good prices. We have just received a lot of 20 kegs of very choice basswood honey, which we offer at \$1.50 per keg of 50 lbs. This is about as nice basswood honey as we ever had, much of it containing some clover, and the price is 1c lower than we have offered for over a year. We have also some basswood honey in 60-lb. square cans, two in a case, that we offer for 9½c per lb.

CUTHBERT RASPBERRY PLANTS AT LOW FIGURES.

Perhaps we have no better honey-plant than the Cuthbert raspberry—at least there is no other plant on which the bees seem to be so busy; and when we consider that Cuthbert raspberries are never without a purchaser—at least they never have been in our locality—it seems to me it is a good deal more rational to put out raspberries than to waste time and money on plants for honey and nothing else. Last year we sold every quart of our Cuthberts, at a price not less than 14 cents; and a great many of them, when they first ripened, brought 10 cents a pint. Now, for immediate orders, before the young plants are torn up by the cultivator, we will fill orders at the following rates: 10 plants, 15c; 100, \$1.00; 1000, \$7.50. If wanted by mail, add 5c for 10, or 25c for 100, for postage. It will be noticed that the above prices are less than half those given in our seed catalogue.

CHANGE IN SCREW-TOP GLASS PAILS.

We call the attention of our customers to the fact that we are compelled to change the pattern of our screw-top glass honey-pails. Those shown on page 22 of our catalogue are no longer made. The manufacturers have discontinued making them, and have destroyed the molds. We have been fortunate enough, however, to find another to take its place. See cut and prices in our advertisement on another page. There are now 4 sizes, and prices are somewhat changed. While on this subject I might also state that there is every prospect for another general strike among glass-blowers, which is bound to run prices up again, the same as a few years ago. At present the prices on this class of goods are as low as we have ever known them, and are sure to go no lower. The probabilities point

toward advanced prices. It will be policy to anticipate your needs and get yourselves supplied. We are laying in a large stock, and hope to hold our prices through the season, but we may be compelled to advance. Prices in our ad. will hold till further notice.

GLEANINGS ENLARGED.

You will notice that we have added 16 *extra* pages to this number. We do this to enable us to utilize some of the valuable articles which have been waiting their turn.

KIND WORDS FROM OUR CUSTOMERS.

CAN'T PART WITH OLD FRIENDS.

Of course, continue GLEANINGS. It has been the friend of my ignorance in the management of bees too long for me to discontinue it now. It is an old and true friend. Send it on
Home, La. W. F. ROBERTS, M. D.

The goods ordered of you some time ago came to hand all right, every thing in good shape. Nothing was missing. Thanks for your promptness.

MATTHIAS SCHNEIDER, JR.
Melvor, Mich., Mar. 18, 1889.

Goods came in fine order. I have not had time to examine them thoroughly. Strawberry-plants were very fine. I have not had time to count the separators, as I have just returned from the gold-mines in Lower California.

San Diego, Cal., April 4, 1889.

W. G. BAKER.

SENDING TOMATO-PLANTS BY MAIL.

Those tomato-plants came to-day by mail, and are as nice and fresh as though they had just been taken from the bed. You told in GLEANINGS that you would send 10 for 10 cts., but I have made more out of them the way we count here. G. A. HOFFMAN.
Riverside, Wash. Co., Ia.

The lawn-mower and barometer came promptly on the 13th inst. Freight \$1.48. The mower is an excellent "institution." It does the nicest and best work, with the least labor, of any thing I ever handled.

Disco, Tenn., April 13, 1889.

S. L. GREER.

I am very much pleased with GLEANINGS, and think it a very valuable paper. I am very much interested in Mr. Root's travels to California, and think the whole of the bee literature is developing and becoming more interesting.

HORACE F. GRESSMAN.
Water Valley, Erie Co., N. Y.

OUR NEW SEWING-MACHINE.

The sewing-machine came all right; freight, 60 cts. It sews as nicely as any Singer sewing-machine in this place, and is as good as their \$40 machines, and is as nicely finished.

Pana, Ill., Feb. 4, 1889.

D. C. MCLEOD.

PLEASED CUSTOMERS.

I received my goods to-day, shipped the 8th. They are all in fine shape. I can not say too much in their praise. It is no wonder you have a big trade, if your goods are always packed with the same care that I always find mine. I never looked over so many pails before, without finding some cuts. These are all perfect. My wife says that the honey-knife and extractor are very nice. E. A. PRATT.
Myrtle, Pa., April 22, 1889.

STOP MY ADVERTISEMENT.

Friend Root:—Will you please stop my advertisement in GLEANINGS? All my stock is engaged. I have used only GLEANINGS and *Popular Gardening* in advertising this spring, and am better satisfied with the results from both than with any papers I have heretofore used. THEO. F. LONGENECKER.
Dayton, Ohio, April 18, 1889.

[Your advertisement was exceedingly well gotten up, and was very attractive. I noticed it at the time, and I think that those who write advertisements will do well to study yours a little.]

THE LAST NUMBER JUST SPLENDID.

The last number (April 1) of GLEANINGS is just splendid. I was sick when it came, and thought I would only *glance* through it; but I could not lay it down till I had read most that was in it.

MAHALA B. CHADDOCK.

Vermont, Ill., April 14, 1889.

Dear Sir:—The \$1.15 worth of seeds came by mail promptly, and through the customs without any duty; and by figuring the same up at catalogue rates from the Canadian house where I had hitherto dealt it amounted to \$1.90 so in that transaction I nearly saved the price of GLEANINGS.

Minesing, Ont., March 22, 1889. THOS. STOKES.

BROTHERLY LOVE.

I enjoy your talks in Our Homes very much. Your description of the spirit of brotherly love which you say is characteristic of Long Beach is but a good illustration of the text, "By this ye know that ye have passed from death unto life, because ye love the brethren." L. A. DUGGAN.
Cuthbert, Ga., Feb. 11, 1889.

[Friend D., what impressed me at Long Beach was, that in a family where the husband was a Baptist and the wife a Methodist, they both joined in insisting that I must see one of the "very best women in the world," who lived in their town; and this "best woman in the world" was a Congregationalist; and it really seemed as if that spirit pervaded Long Beach. The members of all the different churches seemed to exhibit just that spirit toward one another. The consequence was, that when a union meeting was held it contained pretty much all of the people in the town—men, women, and children. In fact, it was a wonder how so small a place could possibly furnish such a tabernacle full of people.]

GET ACQUAINTED.

We don't believe there's a reader of GLEANINGS that wouldn't subscribe for the BEE-KEEPERS' REVIEW, to the mutual advantage of readers and REVIEW, if only all these readers were acquainted with the REVIEW and its merits. We are willing to do all in our power to bring about an acquaintance. We shall be glad to send free, to all applicants, three numbers of the REVIEW; and we will send those that are reasonable, too. The perusal of these will give a fair idea of what the REVIEW is like. Also allow us to suggest that it is not necessary to wait until the beginning of the year to subscribe, as we have a big stack of back numbers, and can supply them even from the first issue. The discussions of last year are fully as valuable as those of the present year. Price of the REVIEW, 50 cts. a year.

The Production of Comb Honey is a neat little book of 45 pages; price 25 cts. This book and the REVIEW one year for 65 cts. For \$1.00 the REVIEW will be sent two years, and the book "thrown in." Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,
613 Wood St. 9d Flint, Mich.

[In responding to this advertisement mention GLEANINGS.]

CARNIOLAN QUEENS.

Now booking orders for June. Tested, \$4.00; untested, \$1.00, or \$5.00 per 1/2 doz.

SEND POSTAL FOR CIRCULAR.

9-10d S. W. MORRISON, M. D., Oxford, Pa.

SEND 2-ct. stamp for valuable Poultry Hand-Book. C. D. SENSEMAN, 126 S. 2d St., Philadelphia, Pa.

TESTED Italian queens, limited number, \$1 25 each. Frank Benton's imp. queens, \$4.00 each. 9d S. F. REED, N. Dorchester, N. H.

R. C. Brown Leghorns, EGGS, \$1.00 per 13; PRAIRIE FARM. GEO. L. FERRIS, FIVE CORNERS, N. Y. \$2.00 per 30.

I WILL SELL FULL COLONIES OF BEES, IN eight-frame Langstroth hives, at \$4.00 per colony, in lots of five or more. 9-10d H. C. GILSON, Burr Oak, Mich.

FOUNDATION.

I MANUFACTURE COMB FOUNDATION. I have the latest improved machinery, and large experience. I think I can please you with quality of work. Circular free. J. I. PARENT, Birshton, Saratoga Co., N. Y. 9-10d

Green Wire Cloth,

FOR

Window Screens and Shipping Bees,

AT

GREATLY REDUCED PRICES.

The following lot of wire cloth is a job lot of remnants, and full rolls direct from the factory, that are **FIRST QUALITY**, and the pieces are of such variety of size as to furnish any thing you want. Price 1 3/4 cts. per sq. foot, for full pieces. If we have to cut the size you want, 2 cts. per sq. ft.

When you order a piece, and somebody else has got it ahead of you, we will substitute a piece the nearest in size to the one ordered, unless you specify in your order that you do not want us to substitute. The figures on the left indicate the width.

8	10 rolls, 67 sq. ft. each; 1 each of 66, 65, 64, 63, 62, 62, 54, 40, 27, 22, and 4 sq. ft.
12	29 rolls of 100 sq. ft. each; 4 of 98, and 1 each of 102, 97, 92, 75, and 44 sq. ft.
16	4 rolls of 133 sq. ft.; and 1 each of 132, and 130 sq. ft.
18	12 rolls, 150 sq. ft.
24	13 rolls of 200 sq. ft. each.
26	79 rolls of 216 sq. ft. each, and 1 each of 215, 210, and 204 sq. ft.
28	43 rolls of 233; 3 of 224; 1 of 257 sq. ft.
30	10 rolls, 250 sq. ft.
34	6 rolls of 283 sq. ft.
38	9 rolls, 316 sq. ft.
	1 roll, 42 inches, of 350 sq. ft.; 2 of 44 in., 366 sq. ft.
	THE FOLLOWING CLOTH IS BLACK.
40	4 rolls, 333 sq. ft. each.
42	7 rolls, 350 sq. ft. each.

A. I. ROOT, Medina, O.

THE BEST WAY TO GET COMB HONEY

is to get some of C. E. Jones's Southern bees. I handle more Southern bees than any other man in the North. Sometimes I get three lots in one week. I have ordered as many as fifty colonies at one time. I have men in the South that raise bees for me only, and the bees are pure Italians, and healthy. I have tried three years, and found one colony of young bees in May, from the South, are worth two that winter here. One L. frame nucleus, \$2.50; 2 frame, \$3.00. New swarms, five frames, 3 lbs. bees, in shipping-case, just from the South, \$6.00.

9d C. E. JONES, Delaware, Ohio.

In responding to this advertisement mention GLEANINGS.

FOR SALE.

Sections in bushel boxes, No. 1, \$3.00 per M. Japanese buckwheat; a complete S. or L. hive for comb honey, 75c; shipping-crates, and all kinds of supplies cheap. Price list free.

9fdd W. D. SOPER, Jackson, Mich.

JOB LOT OF POULTRY-NETTING.

Small Pieces at same Rate as full Rolls — $\frac{3}{4}$ ct. per Square Foot.

Five or more pieces, 5 per cent off; ten or more, 10 per cent discount.

Inches wide.	Inch mesh.	No. of Wire.	
			By dividing the number of square feet in this column by the width in the first column, you can ascertain the length of each piece. These figures give the number of square feet in each piece.
60	2	19	495, 445, 335, 330, 325, 280, 230, 165.
72	2	18	195.
72	3	19	720, 672, 636, 618, 558, 438, 270, 252, 222, 168, 162, 156, 156, 48.

We know of nothing nicer or better for a trellis for creeping vines than the above netting. A. I. ROOT, MEDINA, O.

NICKEL-PLATED "LEADER" SHEARS.



Elegantly Nickel-Plated Steel Shears
At Less than Half the Usual Price.

TABLE OF PRICES.

Postage.		Name.	Prices		
			One.	10	100
5	6 1/4	inch nickel Leader Shears	\$ 20	\$1 00	\$18 50
5	7	" " " " " "	25	2 30	22 50
5	7 1/2	" " " " " "	30	2 70	26 00
5	8	" " " " " "	35	3 00	29 00
6	8 1/2	" " " " " "	40	3 40	33 00
8	9	" " " " " "	45	3 80	37 00
10	10	" " " " " "	50	4 20	41 00

The above are all what are known as straight trimmers, as shown in the cut, except the 9 and 10 inch. Part of these are straight, but most of them are bent trimmers; that is, the bottom of the shear, or bottom blade, is on a level with the bottom of handle. Such large shears are generally used for cutting on a table, and this shape is preferable. We have also a few dozen 9-inch barber shears that will be put in at the same price. These shears are made near here, and we have been in the factory, and have seen them in process of making. The blades are steel laid, and all is handsomely nickel plated. Now you will want to know how we can sell them so cheap. In welding the steel plate on to the blades there will sometimes be a little flaw that can not be all taken out in polishing. These slight blemishes do not injure the shears a particle for actual service, but still they don't like to put them among the first grade of perfect goods. They are kept by themselves, and sold at a lower price. Of course, these goods are not regular stock, and are not advertised by the makers. Therefore whoever takes the lot as they come can get them very low. Having bought so large a quantity, 150 dozen, we got them at our own price, and it is for that reason that we are able to offer the above bargains. Some of the shears are perfect in every respect, except that they lack a full nickel plate all over, and some are so near perfect that you can not see any thing at all the matter with them, and they are all just as good for service as the very best grade.

A. I. ROOT, Medina, O.

EARLY + QUEENS

S. NOSTITTE

ALL + ITALIANS

	Apr.	May.
1 untested queen	\$1.00	\$1.00
3 " " " " " " " " " "	3.40	2.50
1 virgin " " " " " " " "	\$6 per doz 60	60
1 tested " " " " " " " "	3.00	2.50
3 " " " " " " " "	7.50	6.00

2 and 3 fr. nuclei; special rates to dealers. South Carolina is the best State in the South for early queens. The climate is well adapted to queen-rearing, and it takes but 4 or 5 days to send them through the mails to any part of the Northern States or Canada. Prompt shipment and safe arrival guaranteed.

W. J. ELLISON,
6-8-9-10d Stateburg, Sumter Co., S. C.

In responding to this advertisement mention GLEANINGS.

1000 Lbs. Bees with Queens and Brood.

Bee Supplies, Honey, &c. Price List Free.
Oliver Foster, Mt. Vernon, Linn Co., Iowa.
Mention Gleanings. 7-10db

Pure Italian Bees For Sale

Two-frame nuclei, \$3.50; 3-frame, \$4.00. Full colony in A. I. Root's Simplicity hive, \$7.00. Each nucleus and full colony to contain a fine tested queen, and plenty of bees and brood, all on wired L. frames, combs drawn from foundation. To be shipped in May. Safe arrival guaranteed. Hives new, and every thing first-class. I shall do by all as I would be done by.

N. A. KNAPP,
7-10db ROCHESTER, LORAIN CO., OHIO.

In responding to this advertisement mention GLEANINGS.

Minorcan Queens.

Very prolific, and tolerably docile. No foul brood known. Will be sent from April to October, by mail, on receipt of \$2 greenback in certified letter.

F. C. ANDREU.

7-8-9d Port Mahon, Minorca, Spain.

LOOK HERE!

A complete hive for comb honey, \$1.30. No. 1 V-groove one-piece sections, \$3.50 per M. Price list free.

J. M. KINZIE,
8tfd Rochester, Oakland Co., Mich.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdh

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.
See advertisement in another column.

ON 30 DAYS' TRIAL.



THIS NEW ELASTIC TRUSS

Has a Pad different from all others, is cup shape, with Self-adjusting Ball in center, adapts itself to all positions of the body, while the ball in the cup presses back the intestines just as a person does with the finger. With light pressure the Hernia is held securely day and night, and a radical cure certain. It is easy, durable and cheap. Sent by mail Circulars free. ECCLESTON TRUSS CO., Chicago, Ill.

In responding to this advertisement mention GLEANINGS.

Italian Bees and Queens for Sale

Wishing to reduce my stock of bees, I offer 50 colonies of fine Italian bees at the following extremely low rates: Full strong colonies on L. frames, put up in light shipping-boxes, f. o. b. at my station, \$5.00 per colony. Tested queens, \$1.25 each. Satisfaction guaranteed.

A. C. BRUSH,

8-11db Susquehanna, Sus. Co., Pa.

In responding to this advertisement mention GLEANINGS.

Attention, Poultrymen!

Black Minorca, Langshan, R. C. B. Leghorn, Silver-spangled Hamburg, and Wyandotte eggs, \$1.00 per 13. Minorca fowls, \$3.00 per pair.

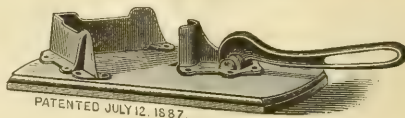
E. P. ALDRIDGE,

8tfdh Franklin Square, Col. Co., O.

In responding to this advertisement mention GLEANINGS.

SECTION PRESS.

PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to

WAKEMAN & CROCKER, Lockport, N. Y.

In responding to this advertisement mention GLEANINGS.

B. J. MILLER & CO.,

NAPPANEE, IND.,

BEE-HIVES AND ITALIAN QUEENS.

4x4x1/4 Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 1tfdh

In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3-14db Box 11, Higginsville, Mo.

In responding to this advertisement mention GLEANINGS.

WHAT TO DO,

—AND—

How to Be Happy While Doing It.

The above book, by A. I. Root, is a compilation of papers published in GLEANINGS in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. I think the book will be well worth the price, not only to those out of employment, but to any one who loves home and rural industries. Price in paper covers, 50 cts.; cloth, 75 cts. If wanted by mail, add 8 and 10c respectively.

A. I. ROOT, Medina, Ohio.

J. C. SAYLES, HARTFORD, WIS.,

Manufactures Apiarian Supplies of Every Description. Catalogue Free to All.

3tfdb *Send Your Address.*

BEE-HIVES, SECTIONS, ETC.

WE make the best bee hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece $4\frac{1}{4} \times 4\frac{1}{4}$ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

FOR THE SEASON OF 1889.

Headquarters in the South.

ELEVENTH ANNUAL CATALOGUE NOW READY.

A steam-factory exclusively for the manufacture of Bee-Keepers' Supplies.

ITALIAN QUEENS.

Tested, ready in March. Untested, by April 1st. Contracts taken with dealers for the delivery of a certain number of queens per week, at special figures.

FOUR-FRAME NUCLEUS,

with pure Italian queen, containing 3 pounds of bees when secured—in April and May, \$4.00; after, 25 cts. less. Safe arrival and satisfaction guaranteed on all queens and nuclei.

For more particulars, send for Eleventh Annual Catalogue.

1351

P. L. VIALLO, N,

Bayou Goula, Iberville Parish, La.

HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; O. G. Collier, Fairbury, Neb.; C. D. Battey, Peterboro, Madison Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

**CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.**

In responding to this advertisement mention GLEANINGS.

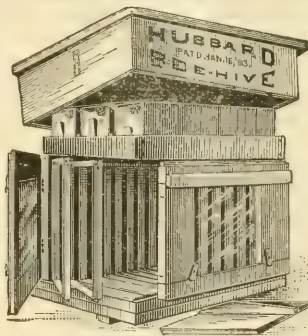
DOOLITTLE

says that if you wish any of those nice Italian bees, at \$7.00 a colony, you must speak quick, for they are going fast. The reason that they go so fast is because each colony contains a nice \$4.00 queen. See page 245 of GLEANINGS for April 1st.

G. M. DOOLITTLE, Bordino, Onon. Co., N. Y.

In responding to this advertisement mention GLEANINGS.

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

G. K. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.
For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied.
Mention GLEANINGS. 7-12db

LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10-frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, \$7.00; 2 at one time, \$13.00; 4, same, \$24.00. Remember the risk of shipping lies with me. Address **JNO. A. THORNTON,**

Exp. office, Ursa, Ill. Lima, Adams Co., Ill. 6-11db

50 Colonies of Bees for Sale.

In order to reduce my stocks. Same are Italians, in L. hives, with combs built on foundation mostly wired. Price \$5.00 per colony. Will ship as early as weather will permit, and guarantee safe arrival.

ADOLPH VANDEREIKE,

7d Lake Mills, Jefferson Co., Wis.

THE A B C OF

CARP CULTURE

A COMPLETE TREATISE

Upon the Food Carp and its Culture.

INCLUDING PLANS AND SPECIFICATIONS, AND FULLEST INSTRUCTIONS FOR THE CONSTRUCTION OF PONDS, AND EVERY THING PERTAINING TO THE BUSINESS OF RAISING CARP FOR FOOD.

Illustrated by Many Fine Engravings.

By A. I. Root and George Finley.

PRICE: 35 Cts.; by Mail, 40 Cts.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To exchange pure Brown Leghorn eggs and cockerels (Todd strain) for any thing useful. Write first.
3tfdb A. F. BRIGHT, Mazeppa, Wabasha Co., Minn.

WANTED.—You to send for my new price list of Imported and American Italian queens. Can ship as early as the earliest.
3tfdb R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
4tfdb OTTO KLEINOW, No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange all kinds of bee-keepers' supplies and Cuthbert raspberry-plants for bees.
8tfdb C. W. COSTELLO, Waterboro, York Co., Me.

WANTED.—To exchange, barrel steamer for cooking feed, T pipe complete, and Wilson hand bone-mill, new, for extracted honey or any thing of standard market value.
8-9d H. L. GRAHAM, Letts, Iowa.

WANTED.—A good workhand by the year, who knows something about bees, competent to manage a large farm and stock.
8-9d G. J. GRAY, Dell, Malheur Co., Ore.

WANTED.—To exchange three-frame nuclei, at \$3.00 each. Tested queens, \$1.25 each; untested, 75 cts. each; Italian albino, for Shropshire or Hampshire sheep.
8tfdb I. R. GOOD, Nappanee, Ind.

WANTED.—To exchange power buzz saw (iron frame, wood table, with two 12-in. saws) for a 16 in. or 18 in. planer. Write, describing what you have got.
E. M. TENNANT, Willett, Cort. Co., N. Y.

WANTED.—By a graduate of one of the best commercial colleges of America, to teach a few young men or ladies a thorough course in book-keeping, by mail, in exchange for thoroughbred sheep, swine, or buckwheat. Best references.
FINIS A. WOOTTON, Skilesville, Ky.

WANTED.—To exchange a magic lantern, 12 views, cost \$12, for a watch.
9-10d E. B. HUGHES, Pipestem, Summers Co., W. Va.

WANTED.—To exchange a Barnes foot-power saw combined. Also a first-class violin, cheap at \$15.00, for Italian bees on L. frames.
J. E. HENDERSON, Roney's Point, W. Va.

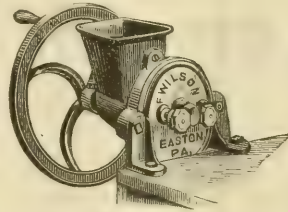
WANTED.—To exchange a 3 horse-power engine and boiler for a good horse; also 1000 sections for two bushels of Japanese buckwheat.
W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange Japanese buckwheat and P. Rock eggs, and Barnes improved circular saw, for bees by the pound, young queens, and reliable strawberry-plants.
9-12db H. O. MCELHANY, Cedar Rapids, Ia.

WANTED.—To exchange bees by the pound, for buckwheat (Japanese preferred), Poland China brood sow, or thoroughbred pigs.
9d F. A. WOOTTON, Skilesville, Ky.

Wilson's No. 1 Bone-Mill,

FOR GRINDING DRY BONES, SHELLS, GRAIN, AND ANY THING ELSE YOU WANT TO GRIND.



Who has not wanted a mill of some kind, to grind up things? The coffee-mill is all right as far as it goes; but it is slow; and if you don't look out it will break. The mill shown in the accompanying picture will not only grind all sorts of grain for the chick-

ens, but it will also break it up coarsely for table use. Cracked wheat and cracked corn are not to be despised for a change in the bill of fare, I tell you, especially when you have nice honey or maple molasses to fix with it. Well, this mill will do more too. It will grind oyster-shells so as to give the hens material for egg-shells. It will also grind bones; yes, broken crockery, broken flower-pots, or any thing else. Well, by the latter operation you kill two birds with one stone—you get it out of the door-yard, and furnish the biddies just exactly what they need for grinding up the grain in their crops. If you do not believe it is better than gravel, just give the fowls a chance to tell you which they like best. The usual price of this mill is \$5.00; but you may have the mill and GLEANINGS too a whole year, for \$5.50. If you have already paid for GLEANINGS for a year, you may have the mill for \$4.50. The sieve attachment for taking out the fine dust, when crushing shells, or to take out fine meal, when cracking corn, will be furnished for 60 cents extra.

A. I. ROOT, Medina, O.

IGNOTUM TOMATO-PLANTS.

A great lot of them, transplanted and well rooted, ready to go off by first mail. Prices, 3 for 10 cents; 10 for 25 cents, prepaid by mail. By express, \$2.00 per 100.
A. I. ROOT, Medina, O.

EGGS FOR HATCHING, from pure-bred Langshans, L. Brahmas, and Wyandottes; \$1.25 per 13; 26 for \$2.00; satisfaction guaranteed.
9d J. W. & L. J. RAY, Xenia, Ohio.

FOR SALE CHEAP.

200 HALF-STORY WIDE FRAMES, AND 300 wide frames with tin, all as good as new. Simplicity sizes, will be sold to the highest bidder.
9-10d W. L. COGGSHALL, West Groton, N. Y.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they want to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough to these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 12 black queens for sale, at 25 cts each.
W. P. W. DUKE, Nettleborough, Clarke Co., Ala.

I will mail Italian hybrid queens for the next 60 days: three for \$1.00, or one for \$3 cts.
W. P. DAVIS, Hyatt, Anson Co., N. C.

FOR SALE.—20 hybrid queens at 50 cts. each, shipped in Peet cage; safe arrival guaranteed.
H. L. FISHER, Milford, Kosciusko Co., Ind.

I have a few mismatched Italian queens which I will sell for 30 cts. each; four for one dollar. Warranted good layers.
J. T. VAN PETEN, Linn, Wash. Co., Kan.

I have about 20 hybrid queens, and will take 35 cents each, or 3 for \$1.00.
E. S. VICKERY, Hartwell, Hart Co., Ga.

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FRESH-MADE FOUNDATION

I am still in the wax business, and will sell at the following prices:

Heavy foundation, per lb	35c
Light, for boxes	45c

Wax taken in exchange.

10d **B. CHASE, Earlville, N. Y.**

In responding to this advertisement mention GLEANINGS.

2000 LBS. BEES

READY TO SHIP BY RETURN MAIL;

Also 1000 lbs. Comb Foundation, and all kinds of supplies.

R. E. SMITH,
Box 72. Tilbury Center, Ontario, Can.

In responding to this advertisement mention GLEANINGS.

Chas. A. Stockbridge, Fort Wayne, Ind.

Manufacturer of and Dealer in

STOCKBRIDGE'S SIMPLICITY BEE HIVE,

Sections, Frames, Smokers, Comb Foundation, &c.

Mention this Paper.

Send for Price List.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers" (Mention Gleanings.) 11fdh

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.

See advertisement in another column.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3-14db **Box 11. Higginsville, Mo.**

In responding to this advertisement mention GLEANINGS.

WANTED.—Jan. 1, 1887, number of GLEANINGS. Will pay 10c each. **A. I. ROOT, Medina, O.**

MY 21ST ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. H. H. BROWN, Light Street, Col. Co., Pa.
Mention GLEANINGS. 10-11d

1000 Lbs. Bees with Queens and Brood.

See Supplies, Honey, &c. Price List Free.

Oliver Foster, Mt. Vernon, Linn Co., Iowa.
Mention Gleanings. 7-10db

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION.

See advertisement in another column.

FOR SALE CHEAP.

200 HALF-STORY WIDE FRAMES, AND 300 wide frames with tin, all as good as new, Simplicity sizes, will be sold to the highest bidder.
9-10d **W. L. COGGSHALL, West Groton, N. Y.**

In responding to this advertisement mention GLEANINGS.

FOUNDATION.

I MANUFACTURE COMB FOUNDATION. I have the latest improved machinery, and large experience. I think I can please you with quality of work. Circular free. **J. I. PARENT, Birston, Saratoga Co., N. Y.** 9-10d
In responding to this advertisement mention GLEANINGS.

CARNIOLAN QUEENS

From imported mothers. Untested queens, \$1.00; tested queens, \$2.00.

J. B. KLINE'S APIARY,

7-10db

Topeka, Kansas.

WE ARE NOW READY TO SUPPLY ITALIAN QUEENS to any person who wants as good as the best in the U. S. Reared from the egg, in full colonies. Tested, \$2.00; untested, \$1.00; 6 for \$5.00. Mismatched, 50 cts. Permit by Registered Letter or Money Order on New Market, Ala.

B. B. TONEY & CO.,

Padgett, Jackson Co., Alabama.

In responding to this advertisement mention GLEANINGS.

LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10-frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, \$7.00; 2 at one time, \$13.00; 4, same, \$24.00. Remember the risk of shipping lies with me. Address **JNO. A. THORNTON,**
Exp. office, Ursa, Ill. **Lima, Adams Co., Ill.**
Mention Gleanings. 6-11db

B. J. MILLER & CO.,

NAPPANEE, IND.,

BEE - HIVES AND ITALIAN QUEENS.

4½x4½ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 11fdh

In responding to this advertisement mention GLEANINGS.

Minorcan Queens.

Very prolific, and tolerably docile. No foul brood known. Will be sent from April to October, by mail, on receipt of \$2 greenback in certified letter.

F. C. ANDREU.

7-8-9d

Port Mahon, Minorca, Spain.

In responding to this advertisement mention GLEANINGS.

IGNOTUM TOMATO PLANTS

A great lot of them, transplanted and well rooted, ready to go off by first mail. Prices, 3 for 10 cents; 10 for 25 cents, prepaid by mail. By express, \$2.00 per 100. **A. I. ROOT, Medina, O.**



Vol. XVII.

MAY 15, 1889.

No. 10.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES—NO. VII.

HAULING BEES; MANAGEMENT OF HORSES AMONG BEES.

I HAVE hauled a good many loads of bees—so many that I probably shall never get much more used to it than I am now; but I confess to you that I give a sigh of relief every spring when the last load is hauled, and the same thing happens in the fall. I'd like to impress this on your mind pretty strongly; for if you are not very careful you may get into such trouble that you will wish you had never had anything to do with bees. I mean trouble in getting horses stung, for you need anticipate no special trouble if you move your bees by rail. I think I would rather not have a very fractious horse to haul bees, although if no bee ever gets out in any way, there is no more danger than in hauling so many boxes of potatoes. But I never expect to become such an adept at the business that occasionally a bee will not sting my horse, and I am not sure whether a horse becomes used to bees so that, after being stung a few times, he will care less for them, or whether he becomes more nervous about hearing them fly around him after experiencing their sting. I am more inclined to the latter view; so at such times I am quite willing to endure a horse that is lazy and not easily stirred up.

I am not sure whether all horses need the same treatment when attacked by the bees; but I suspect they do, from what little I have learned about others, and the experience I have had with two of my own. A bee attacks a horse at the head oftener than anywhere else, and his first impulse is to get to some post or tree where he can rub his head. A careless observer, seeing a bee attack a horse which is hitched to a wagon, would say that the first impulse of the horse is to run; but I think he tries to

run for the sake of getting to some object where he can rub his head. So when a bee stings a horse on the head, or even annoys it by flying about it, the first thing is to run to his head, and, with one or both hands and forearms, rub his head all over, unless you know where the sting is, and then you will do better to devote your attention to that particular spot. You say that a sting only pains worse to rub it. Never mind; we're not trying to save the horse pain, but to save him from running and smashing things. Let me caution you to look out that the horse does not knock you over with his head, for in trying to rub his head he will strike against you. If you are driving on the road, and a hive springs a leak, unhitch your horse as lively as you can; get him to a safe distance, and hitch him till you get every thing secure. I once had an old hive break so badly on the road, that the only thing I could do was to unhitch and take the team some distance ahead, unload the hive, and leave it on the roadside (till next morning), then draw the wagon a short distance by hand before hitching on. You know how persistently a cross bee will sometimes follow you around. Now, don't go near a horse till you have got rid of such a bee, even if you have to make a detour a long way around.

I have learned to be cautious with a horse, even if there is not a hive in the apiary. One fall, after all the colonies had been hauled home from the Wilson apiary, we went over to bring home the last load of empty supers. My wife and her sister were loading on the supers, and I was occupied at some distance when I was surprised to hear them calling out that the horse was being stung. Charlie had hauled home the last load of bees alone, and in an empty or nearly empty super that he had taken off one of the hives, there were a pint or so of bees. The horse was hitched with his head close to the pile of supers; and when this super was slightly lifted,

one or more bees came out, and the super was immediately shut down. But the horse began to plunge, and knocked the pile of supers over, when the bees poured out upon the horse. By the time I got there he was rearing and plunging, the bees all over him. Failing to untie him I took out my knife and cut him loose, when he threw himself flat on his side, fortunately breaking nothing, and refused to stir for my kicking. I stuck my sharp-pointed knife into his side, which perhaps he took for an unusually bad sting. At any rate, he sprang to his feet and started for a lively trip around the orchard, I hanging on by the bits, ardently wishing something might stop us, but pretty soon we stopped ourselves, pretty well tired out, and while I hung on, the others unhitched him from the wagon and I let him make a few circuits of the orchard, when I caught him and led him into the barn, very tired, very wet, and probably very sore, his head hanging down as if meditating on the uncertainties of piles of empty supers. I was in my bare head, and got one of the worst stings I ever had. All this is told to try to make you careful about bees and horses.

C. C. MILLER.

Marengo, Ill.

I am real glad that you have touched upon this matter of what to do with horses when they are stung by bees. I do not know but that I am wicked enough to feel glad that you got pulled around the orchard bareheaded, devoutly wishing that something might "stop us." It never occurred to me before that a horse, when stung by a bee, wants to rub his head against something; but since you mention it, I have over and over again seen horses act in just that way. Poor fellows! They have not any hands to grab the vicious bee, and all they can do is to rub their heads against something to keep the bee off. Yesterday I got quite vexed with old Charlie because he pushed his collar against the limbs of the apple-trees when he was cultivating. I finally surmised that his neck was warm and sweaty, and very likely he wanted to scratch, and he reasoned with horse sense that the limbs of our young apple-trees would do the scratching about as cheap as anybody. Poor fellows! I often feel a great deal of sympathy for them. They are harnessed up and made to go. They can not tell when they feel bad and uncomfortable. In fact, if they should undertake to tell, in any of the ways that dumb folks talk, they would get a sharp scolding, and may be a whipping. I shall certainly try to rub a horse's head whenever I see one stung again. In fact, I have often seen Meg, when a vicious fly got on her head, stop right in the road and turn around, and by means of vigorous nods fairly beg to have somebody get out of the buggy and kill the fly. I don't think it would make the sting hurt any worse on a horse to rub it. I have often felt impatient with drivers of horses because I could not get them to move lively when bees were in dangerous proximity. Once while harrowing close to the apiary a swarm of bees acted very much as if they were going to settle somewhere on the \$400 team. I yelled out to the driver to get his team out of the way with all possible dispatch. He first stopped to ask two or three

times what I wanted. Then he began leisurely to move the lever so as to lift the Acme harrow on to the wheels. By that time I got pretty much in earnest. I yelled out to him to start up his team and make tracks if he knew what was good for him. One second more, and there would have been trouble. The bees followed the team a little way; but when he got under way, the horses took him to a place of safety pretty rapidly. I have sometimes wished we had some arrangement to let the horses entirely loose from the vehicle by pulling a single lever. If we could get the horse loose from the wagon, there is not much trouble in getting him away from the bees, usually. Ernest here informs me that our friend A. E. Manum is a harness-maker, and that he already has something touching on this very matter, forthcoming shortly. Yes, friend M., we are all going to try to be more careful when we have horses among the bees. We thank you for your timely warning.

PARTHENOGENESIS.

PROF. COOK TELLS US HOW WE KNOW IT IS TRUE.

DEAR MR. EDITOR:—I have long known of Ulivi's views in regard to parthenogenesis, as stated by your correspondent, F. C. Andrew; and as he and you request, I will gladly give my reasons for thinking him mistaken.

First, for the younger bee-keepers, let me say that parthenogenesis, or agamic reproduction, means genesis or reproduction without males. That is, a female that has never met a male can produce young. This is illustrated in coral animals, where each alternate generation produces without males, and we call it then alternation of generations. Among insects it prevails in all the summer broods of aphids, or plant-lice. This any one can easily demonstrate. We have only to take a young louse, as soon as it is born—the eggs hatch within the mother-louse—and isolate it—that is, put it on a plant all alone. It will grow, mature, and produce many young lice. This louse has never seen any other louse, male or female, except its own mother, and that only for a brief natal moment. It would have been the same had we left it on its food plant undisturbed; for at this season—midsummer—there are no males at all. The separation was simply to demonstrate that parthenogenesis is a truth. In case of bees, parthenogenesis extends only to the production of the males, or drones; that is, if an unmated queen lays an egg, or if any queen lays an unimpregnated egg, that egg hatches, and a drone is the invariable result.

Now, I am sure that this is true science, and not mere theory. First, because such noted bee-keepers as Dzierzon and Berlepsch, and such able scientists as Siebold and Leuckart, in Germany, and such Americans as Langstroth and Leidy proved it. Again, I have also proved it. I have several times clipped a queen's wing so she could not fly, as soon as she came from the cell, and in no case but one did I ever secure any thing but a drone-laying queen. In many cases these queens were in hives or nuclei with no drones, and so guarded that the drones could not enter or the queens go forth. So Ulivi's statement, that they were impregnated in the hive, could not be true. But I have stronger

proof. It is very easy to tell with the microscope whether or not a queen has met a drone. If so, the very active sperm-cells are easily found. I have dissected these drone-laying queens repeatedly, and always failed to find the spermatozoa. They were not there. So I am positively sure that the queens never mated; and yet they produced drones, hence I know that parthenogenesis is true.

Again I have dissected fertile workers—several of them—and though they laid eggs, I even found eggs in their ovaries; yet all produced drones. Moreover, they had no spermatheca. True, the little rudiment, small and functionally imperfect, was present, but no sign of an active spermatheca. Ulivi says these are real queens, and have mated. It will be difficult to convince such apiarists as Viallon, of Louisiana, who sent me several fertile workers at one time, that these are queens. They have the form and general structure of workers throughout, except that they are fertile. From dissection I know they never had met, nor was it possible for them to meet a drone. They were not sufficiently developed. Many other insects, like ants and wasps, illustrate this law as exemplified in bees; while other insects, even as high as moths, have been known to produce eggs that hatched, and yet the moth had never been near a male.

The statement of Ulivi, that this theory is announced to favor breeders of queens, is not worthy of notice, certainly in America. Many, I think most of our queen-breeders, are men of high character, who would despise to misrepresent or deceive. To say that Dzierzon and Berlepsch proposed this theory with fraudulent purpose or intent, is very unkind and uncalled for. Both were grand men who would scorn such a thought even—men who thought no evil. Such insinuations need no refutation. Our bee-keepers are too intelligent to heed them for one moment.

Agricultural College, Mich. A. J. COOK.

FIXED FRAMES.

FRIEND HEDDON CONSIDERS THEIR ADVANTAGES.

I WAS deeply interested in reading the answers to Query 117, which is as follows: "If you use all-wood frames, do you prefer to have them hung on metal rabbits or on a plain wood bearing, in the production of honey?"

I believe all who answered this question, did so honestly from their experience as honey-producers. A few years ago I should have answered it the same as the majority of them did, because I should have answered it from my standpoint of knowledge and experience at that time. Brother C. C. Miller says, "On a plain wood bearing. Then they are always ready to haul without fastening the frames." Brother Geo. Grimm says, "I use all-wood frames hung on wood bearings. Metal rabbits are a source of constant annoyance to me, and the few that I had I have discarded."

Now, friend Root, I am going to attack your foot-notes next, for you are also one of those fellows who pitch in among the answers. You say that a few have been bold enough to discard frames altogether, having a shallow brood-case something like Heddon's, and letting the combs be built in solid. Yes, sir, that was the very idea I had years ago, when I wrote an article for which you called me a box-hive bee-keeper, and made a box-

hive department, fully expecting that I would have that department to dance around in all by myself. That kind of a hive would have one splendid advantage. Having no bottom-bars in the way, how easily you could look into every thing! But you see with my new hive I have a § bottom and top bar, so I could get nearly as great an advantage in that direction. Well, by experimenting carefully with this and various other styles, I found I really did want the frames, especially where full sheets of foundation are used.

Nearly all of those who have answered this question contemplate pulling the frames out and in, very frequently. None of them contemplate a hive with which nearly every bit of the useful manipulation, such as the practical honey-producer desires, can be done without ever removing a frame. Another thing: The close-fitting frame, which they all have in their mind's eye, works upon an entirely different plan from the manner in which I use it. When father Langstroth visited me and practically handled my hive, he would not believe, before he had put it to the test, that he himself could handle eight of these close-fitting frames quicker than he or any one else could handle the suspended frame; but he found he could. He found an arrangement or adjustment of which he had not hitherto conceived. Let me give you the exact words of the grand old benefactor whose mind and conception of mechanics seems to be as bright as ever it could be. I quote from his article in the *American Bee Journal*:

1. Before I saw the easy working of his frames (EVEN IN HIVES WHICH HAD BEEN OCCUPIED FOR SEVERAL YEARS BY BEES), with close-fitting uprights (I prefer this French term to our word ends), I could not conceive how they could possibly be handled as rapidly or safely as the Langstroth frames. The propolis trouble alone seemed to forbid this. Judge of my surprise, then, to find, that, by leaving no space for bees to get between the uprights and the cases holding the frames, and by keeping the touching surfaces of the uprights so closely pressed together by the thumb-screws as to leave no joint open wide enough for bee-glue, he had actually reduced the propolizing propensity of bees to a minimum.

My knowledge of the trouble and delay in manipulating all the previous styles of close-fitting uprights, led me to think that it would be quite difficult to handle the Heddon frames. To find that I was mistaken on this point, was a greater surprise than the way in which the propolis difficulty was met. In handling Langstroth frames of the standard depth (and still more with deeper frames), bees are often hurt between the uprights and case—a thing impossible with the Heddon arrangement, while at the same time the uprights of his case—as they go down into the hive, when a frame is put back—only push the bees away instead of pinching them between their closing surfaces. When the Langstroth frames are put back, even by experts, it often happens that they must re-adjust the spacing, to get room for the last frame; whereas the Heddon frames always go to their proper places. As a matter of fact, then, the Heddon frames can be safely handled with more rapidity than any in previous use; thus securing all the advantages of close-fitting uprights without their old inconveniences.

It seems to me, friend Root, that the whole thing is summed up in this way: Bee-keepers who have educated themselves to the constant handling of combs, prefer the hives arranged as are tenelements, and they want the metal rests, and laterally movable frames; but those who have found themselves compelled to handle 200 colonies of bees in the same length of time they used to handle 100, have found they must handle the hives more, and not open them so much. This is just what I found,

and what led me to the invention and construction of a hive with which I could accomplish all that the practical, successful honey-producer needed, and that, too, almost instantly, with scarcely ever needing to remove a single frame. That accomplishment meant closed-end frames; and when Dr. Miller and George Grimm mention the advantages of "hauling" hives of bees, and the "constant annoyance" of having frames rattling round, they have no idea what a comfort it is to use a hive with shallow, straight combs, with which the usual advantage of lateral movement plays no part. The hives can be carried in and out of winter repositories, as well as being handled every way with that security, safety, and convenience with which only fixed frames can be handled, and at the same time, when desired, each frame can be handled quicker than the suspended frames can be operated.

I am this day in receipt of a letter from M. M. Baldridge, which is only a sample of many others received, telling how much better his bees wintered in extremely shallow frames than in those of the Langstroth depth, or deeper. That is just my experience. The very shallow frames are the best for wintering, likewise for early spring breeding. The reasons for these facts are obvious; but this article is getting too long, so I will close by saying that, since the invention of comb foundation, and the arrangement and adjustment of frames as described above, the suspended frame has had its day, and will soon become obsolete with the practical honey-producer who feels himself compelled to produce his crop with the least possible outlay of labor, which is the main factor connected with the cost of honey production. JAMES HEDDON.

Dowagiac, Mich., Apr. 9, 1889.

CLOSED-END FRAMES.

SOME GOOD ARGUMENTS IN THEIR FAVOR.

FRIEND ROOT:—I am glad to see you admit, in your comments on Questions 116 and 117, that there are good reasons why a honey-producer should prefer closed-end frames.

No doubt it seems a wide departure from the metal-cornered frame hanging on metal rabbets, and it probably is difficult for one who has used only such frames to believe that an all-wood frame, with the ends jammed up close together, to be propolized by the bees, can be as readily handled. I remember when we were at the Chicago convention, in 1887, you asked me what kind of hive I preferred; and when I answered that I did not exactly know, only that I was sure of two things—that I wanted a shallow hive and one with the frames at fixed distances, a curious, half-doubting smile spread over your face as if you would say that you were afraid I was making a mistake. Well, I am very much of the same opinion yet. While I am sure that I want shallow, closed-end frames, I am not yet quite certain as to the best kind of a hive to make them into. I have experimented, and am still experimenting largely. As a result I am now using several different kinds of hives and frames, which is not so inconvenient as you may suppose, as the hives are all interchangeable in their parts; and when I decide which kind I like best, the others can all be changed to that with but very little trouble.

One advantage the closed-end frame has over the

hanging frame, as regards the time required to handle them is, that you waste no time or labor in spacing them; and another is, that fewer brace-combs are built between them, as the distance between comb surfaces is seldom varied.

I have known, ever since I have kept bees in these shallow fixed-frame hives, that my bees wintered better in them than in the deeper hanging frame; but I had always laid it to other reasons, for the most part. Since reading the answer of L. C. Root to Question 116 I am convinced that the closed-end frame deserves more credit for this than I had supposed.

You know I have always argued against upward ventilation in the winter and spring. This morning I was examining some of my colonies, just brought from the cellar, and it gave me great satisfaction to be able to stand the hives on end, or turn them upside down, thus learning all I wanted to know of their condition, without removing the cover or making any crevices around the top of the hive. I believe that, in the spring, when the weather is cold and propolis scarce, the less plastering we make the bees do, the better.

Of 116 colonies put into winter quarters, 31 of them in a cellar, the rest outside, all are at present in good condition but two, one queenless and one so weak it was united.

J. A. GREEN.

Dayton, Ill., Apr. 10, 1889.

FRANCIS HUBER.

HIS LIFE AND SERVICES TO THE BEE-KEEPING WORLD.

WE take the following very interesting sketch from Gravenhorst's *Illustrated Bee Journal*. It was written by Mr. T. Kellen, of Luxemburg. The translation is furnished by W. P. Root.

Francis Huber, by his investigations and researches in apiculture, did more to promote this science than all his predecessors who had employed themselves in the study of this interesting insect. It is his discoveries alone that marked that golden age in the history of apiculture which is destined to remain for all ages. Huber's observations are not only of the greatest importance of themselves, but wonderful for the manner in which they were made; for Huber was blind.

This distinguished man was born in Geneva, July 2, 1750. He was the son of a prosperous and respectable family, which as early as the 17th century were celebrated for their knowledge of the arts and sciences. His father, John Huber (born in 1722, died 1790), was well known on account of his attachment to the celebrated French philosopher Voltaire.

From his earliest youth Huber showed a passionate predilection for natural history, and he applied himself to study with such zeal as to endanger his health, so that at the age of fifteen the reflection of blinding snow destroyed his sight. If ever a man bitterly deplored the loss of eyesight, that man was Huber. But his misfortune did not hinder him from applying himself to the study of those insects for which he had an especial liking; namely, the bees. It was this little insect that turned the darkness of the investigator into day; for Huber was the first to see clearly into that domain which to the best eyes had previously remained in darkness.

Huber did not lose his vigor of mind, for he went

forward in the study of bees; but he could do this only by the help of his wife, Marie-Aimée Lullin; his niece, Miss Jurine; and, above all, his servant Burnens. He himself manifested the most untiring perseverance and the greatest ingenuity, so that, by Burnens' sagacity, all of Huber's experiments with bees were practically demonstrated. Miss Jurine, who loved natural history above all else, supplemented Huber's work all she could, fearing not to take up the dissecting-knife and microscope in his aid. She was the first after Swammerdam to demonstrate that worker-bees are females. She it was, too, who, with Huber, established the principles on which the sages of our century grounded the doctrine of parthenogenesis. Besides that, Miss Jurine was Huber's secretary, full of willingness and self-devotion. Every day she noted down the results of the new investigations, and she also wrote the letters which Huber dictated to Charles Bonnet and his friends, and imparted to him the results of his labors, and directed their attention to numerous questions relating to bees.



FRANCIS HUBER.

Huber's interest in bees was greatly enhanced by the researches and writings of Swammerdam, Reaumur, Schirach, and probably also of the celebrated Swiss bee-keeper, Duchet de Remauffens, and the Messrs. Gelieu. As a conclusion to the investigations of these men, it was possible for him, in spite of his unfortunate surroundings, to add greatly to the realm of apiculture; hence we may not forget that he everywhere encouraged and helped others by the nobility of his life.

In his later days he lived retired, but in peace, at Lausanne, where he died Dec. 22, 1832, at the age of 83.

Huber's discoveries are known to scholars through his letters to Charles Bonnet; and they made his name so celebrated in all Europe, and even in America, that for many years he was recognized as the greatest apicultural genius; and even yet Harnet calls him the greatest of the lovers of bees (*le plus grand des apiphiles*). It was in 1796 that his first epoch-making work was brought to light, bearing the title, *Nouvelles Observations sur les Abeilles* (New Observations on Bees). His son, Peter Huber, in

1814 issued the work in two editions, and added thereto an appendix in regard to the origin of wax.

Huber's work is, not only on account of its contents, but for the peculiar circumstances under which it was first brought to light, entirely without parallel in scientific literature. The recognition which it received was universal, so that, after the first appearance of the work, Huber was received into the French Academy of Sciences, and other scientific bodies.

The New Observations were translated into nearly every European tongue. The Saxon commissariat Riem, in Dresden, translated it into German in 1798, and Pastor Kleine, of Luehthorst, translated it again in 1856, and published another edition in 1869, with notes.

Huber, by his observations on the secrets of bee-life, made clear what the most sagacious and learned observers from the time of Aristotle and Aristomachus down to Swammerdam and Reaumur had sought for in vain; and it is to be the more regretted that some German bee-keepers of great influence, such as, for instance, Spitzner and Matschka, gave him no recognition.

He gave interesting explanations in regard to the habits of bees, their respiration, the origin of wax, the construction of comb, etc. He confirmed Schirach's proposition, that, by a change in the mode of treatment and food of larval bees, queens could be reared from worker eggs, and showed, likewise, the influence which the cell exerted on the insects. He showed further, that not only the queen but a certain species of worker-bee could lay fertile eggs, and showed, likewise, the function of drones. In opposition to Braw, Hattorf, Contardi, Reaumur, and others, who held very peculiar opinions in regard to the fertilization of queens, Huber showed that the fertilization takes place outside of the hive, at the same time that drones are flying, and that the union is effected in the air, and that the queen, on her return from the flight, has adhering to her body the evidences of fertilization, and that egg-laying takes place about 46 hours afterward. These and numerous other experiments he often proved in his works with the utmost exactness; and especially did he lay down the most important and interesting information in regard to feeding bees, their method of building, the leaf-hive, foul brood, etc., in his letters to an eminent apiculturist in Switzerland, Mr. C. F. P. Dubied. These eighteen very long letters of Huber, the first of which was dated Oct. 12, 1800, and the last Aug. 12, 1814, were written partly by Huber himself, partly by his wife or daughter, to whom he dictated. So far as I know, this correspondence has never been translated into German, which is greatly to be regretted.

When one reads Huber's observations, it becomes evident that the author interested himself in bees, from a scientific standpoint only. In one of his letters to a friend, he writes that he never realized any material benefit from bees. This is easy to understand when we consider that his experiments with them lasted the entire year through, and were conducted only for the sake of science; and one naturally inquires how he found bees enough to carry out his numerous experiments.

Mr. Kellen here gives a picture of Huber's leaf-hive, which we will describe briefly in our own words, simply basing our figures on his.

Take, for instance, ten single-pane win-

dow-sash, about 13x20 inches. Stand them up the long way, one touching the other. Only the two outside frames have glass in them. Fasten the frames together with small cleats, putting a small screw through the end of each cleat. The screw penetrates the edge of only the outside frames, or those that are glassed; otherwise the inside frames could not be removed for the purposes of observation. Provide an entrance and put on a roof, and there you have the hive that Huber used. Sometimes, however, these frames were hinged at the back, and then they could be opened at one side like the leaves of a book. Mr. Kellen says:

It will be seen that this leaf-hive was the fore-runner of the Dzierzon frame. In fact, at first the frames turned outward, while the movable frames are inside. Such was the service rendered by this blind investigator, who in apicultural science, at least for his time, made true the little legend of his native city, *Post tenebras lux*—light after darkness.

In the above interesting account of Huber's work, it seems a little significant that two of his most valued helpers were women—his wife and Miss Jurine. Woman's place in the industries, inventions, and progress of the world, was beginning to be felt, even in the time of Huber; and oftentimes as I sit in the office and listen to the click of the type-writers (there are four of them now), and see how much of the brains and head-work of our establishment is in the hands of womankind, I deeply ponder. In a great many ways in these latter days, God seems to be choosing the weak ones of the world to confound the mighty.

HIVES.

CLOSED-END FRAMES, ETC.

THIS being the subject I have studied the most, my enthusiasm leads me to say a few words regarding Prof. Cook's article on pages 349 and 350. The professor asks if the advantage gained by the use of close-fitting frames doesn't cost too much. By this I apprehend he must mean to ask if we are not losing more than we gain by parting with the lateral movement of suspended frames. Now, I wish to say that all depends upon the construction of the closed frames. Mr. Langstroth said, and truly too, that the one main objection to all close-fitting frames of the past was the danger of pinching bees when they were put up together sidewise. Well, now, with my arrangement of the tight-fitting frames they are not put up together in that way, and do you not see that I can put a frame down into the hive and take it up much more rapidly, and not only that, but with no danger of pinching or mashing the bees, than we could when using the Langstroth frame? Heretofore the frames have been put together sidewise because they could not be shoved down, pushing them through all the way from top to bottom, removing the possibility of pinching a bee, because they were liable to slide sidewise; but with my arrangement there is no such thing as pinching a bee, either between the uprights on each side or between them and the case. However many bees may be there, they must be pushed out of the way. How is it when you lift a suspended

frame? You know that, unless nerve and time are expended, you are liable, by a little sidewise motion, to pinch bees—not mash them, but pinch them between the uprights of the frames and the case. You hardly notice any thing out of the way; and when you get a jab on the hand or nose by the pain-producing javelin of this bee, you hardly know why it comes. You can not imagine how much less stinging we have, and how much more amiable our bees seem to be, when handling them in the new hive, from whence we seldom move a frame, being able to accomplish all that the practical successful honey-producer could possibly ask without such removal. I mention the foregoing, because friend Cook really makes a mistake in classing my new hive with the Huber and other close-fitting frames. The shallowness of my frames, especially since the adoption of wired foundation, making good, straight, regular combs, the lateral movement of the frames is almost useless.

THE DOVETAILED HIVE.

On page 363 I notice what you say about the popularity of the Dovetailed hive; and so far as the dovetailing is concerned, or, more correctly speaking, the notching, if you make it as accurate and even as the box-factories, certainly your patrons will like it, all of which I studied on and talked about to my students several years ago when we came near putting in machinery for the purpose; but after all, friend Root, when I remember how many such practical bee-keepers as Prof. Cook, Hutchinson, and scores of others I might mention, feel in regard to my modification of the Langstroth hive as against the Simplicity, I feel very certain that it is the changing from the one to the other that gives your customers such satisfaction. I have made my modification of the Langstroth hive, with loose bottom-board with the cleats tacked on, the same as I use with my new hive, and sold them in that shape for about two years; and you will see that the Simplicity will be rapidly superseded by what I suppose I may call the Heddon-Langstroth. In a foot-note to a former article you call my attention to the fact that using cleats to make a beespace on the bottom-board was prior to my invention of it. Certainly it was. I willingly admit that; but that arrangement is no part of my patent, except when used in combination with a divisible brood-chamber, etc. I think I can agree with the several customers you mention, in saying that you will undoubtedly find this the best and most practical hive you have ever sold, and I really wish I had one to look over as a sample. I am mainly interested in the quality of your workmanship all over the hive, and especially in the notching at the corners. I inclose order for a sample hive.

Dowagiac, Mich.

JAMES HEDDON.

Although I am favorable to the closed-end frames, I must say that I can not manipulate and examine in the same time as much comb surface in a divisible Heddon hive as in the old-style full-depth Langstroth. Perhaps it is because practice has not made perfect in my case. I have also tried, several times, shaking bees out of the brood-sections; but, my! how the bees did boil all over the bottom-board, in the grass, and—up my trowsers legs! Perhaps I have not yet quite got hold of the knack of it. We shall take great pleasure in sending you a Dovetailed hive. Test the strength of the corner. ERNEST.

HOW TO DRIVE ANTS OUT OF BEE-HIVES—MANUM'S METHOD.

HOW TO USE THE MANUM SWARM-CATCHER.

JUNE 1.—"Mr. Manum, what shall we work at to-day? We have got the sections all filled with foundation, the new hives nailed and painted, and I can't think of any thing more to do here."

"Well, Leslie, I have heard you and the other boys talking about going trout-fishing when you got the work done. It is now done, and I propose we all go to-day. While Fred and I are hunting up the fish-tackling, you boys may get the bait; and to-morrow we will work at the bees."

JUNE 2.

"Here we are, Will. To-day we are to see that the queens are all laying well; and where we find any with only 10 or 11 combs we will give them more, as I think they are all strong enough now to cover the 12 combs. However, if you find any that are not, we will run them through the season with what they have, unless we give them a card of brood from a very strong colony that is liable to swarm before we come here again; also see that they have honey enough to last a week or ten days. Be sure not to forget that, because this is the trying time with the bees, it being the period between fruit and raspberry bloom. The bees are rearing so much brood now that they use up stores very fast, and the bees that will hatch in the next 20 days are just the bees we want to gather our surplus; hence it won't do to starve them now. We will now fill these carrying boxes with combs containing honey, and take them along with us to save steps."

"Here, Mr. Manum, I wish you would look into this hive."

"Oh! *ants!* and a lot of them too! Well, just wait a moment while I go to the honey-house. There, I will put some of this tarred paper in the hive, and by to-morrow every ant will be gone. This is the simplest remedy I ever tried. Now, as there are no more combs with honey in we shall have to put on sections partly filled with honey, left over from last fall, wherever they need feeding. It makes it pretty handy to have these partly filled sections on hand. We will just uncap the honey, and by the time we are here again the honey will all be below, and then the sections can be taken off."

JUNE 6.

"Now, boys, I noticed yesterday that the raspberries were beginning to blossom, and I think it is time you should go to your respective yards. Fred will take two of you to your yards. Leslie will go to his by the railroad, and I will go with Scott to his yard. (Henry has a family, and lives near his yard.) Here we are, Scott. You will board with Mr. Smith while here."

Scott says, "Mr. Manum, I wish you would lay out some work for me to do while I am waiting for swarming."

"Work! you will find there is work enough before the season is over. In the first place you should examine every swarm, to if see any of them need any thing. You may find some that have lost their queen, as there are a few three-year-old queens in this yard; and you know some of them are not full of comb; and where you find such, if they are pretty strong, and the queen laying well, you can spread the brood-nest and insert a comb in

the center. It will be safe to spread now at this season."

"What shall I do if I find any that are queenless?"

"You will find that such colonies have queen-cells, and if the bees are pure and large, with long wings; and the stripes—or bands—instead of being light yellow are of a yellowish-brown, you may leave one to hatch; but if they are not pure Italians, or if the bands are of a bright yellow, or if the bees are small-bodied and short-winged, you may cut the cells out and give them eggs from one of those hives we have marked to breed from."

"Light-yellow bees may answer in the South, where the climate is more mild than here; but here in the North I find that the dark, or leather-colored bees, are preferable, hence I do not breed from very light-colored queens."

"Now, when you give such a colony a card of eggs for queen-cells you should cut holes in the comb the shape of an inverted A, or, more properly, an equilateral triangle, with the point upward."

"Mr. Manum," says Scott, "the books nearly all say that a long slit should be cut in the combs. Why is this triangle shape better?"

"Because it does not weaken the combs so much as a long slit does; and, besides, I think the bees prefer to build cells on a nearly perpendicular edge rather than on a horizontal one. Probably by the time these cells are old enough to transfer, you may need queen-cells in some other hive, or you can use them in your queen-rearing nuclei."

"After you have looked the bees over, the next thing to do will be to level up all the hives, as they are liable to get out of level during the winter. It is important that they be perfectly level; for unless they are, you will be bothered to get straight combs in the sections."

"When you have done that you will want to clean up the yard. Here is a rake, a hoe, a shovel, and a basket. I like to see a yard kept clean, during the working season at least. You can then mix some paint, and paint such hives as need it. Should there be a rainy day you can fasten foundation in the brood-frames. I don't like to fasten it in at home, as it is apt to break down when transporting it over our rough roads; and, besides, I want work for the boys to do rainy days, or you would get lonesome."

"Well, Mr. Manum" says Scott, "you were right when you said I should have work enough to do. I think I shall not have time to get lonesome—ha, ha!"

"Now I must go. I shall call on you in three or four days; and after you have learned how to hive bees after my method, I shall come only once a week. I aim to visit each yard once a week, hence I have to visit two some days, as I have eight yards, and there are only seven days in one of our Vermont weeks. Now, if I should *happen* to be obliged to visit you on Sunday, please don't ever mention it so Mr. Root will hear of it, for he would surely give me a talking-to, and I know I could never stand his reprimand. Good-by."

JUNE 15, AT CATON APIARY.

"Good-morning, Will! How are the bees doing here?"

"Pretty well for the last two days. Yesterday the scale-hive gained 6 lbs."

"If that is the case, some of the hives must be ready for the boxes. Let us open some and see. Yes, this one ought to have boxes on at once. You

see, every comb is full of brood or pollen, and some honey; and, as you see, every cell from which a bee has hatched is full of new honey and bits of new comb built on the upper edges of the frames. This indicates that more room is needed. You may get a clamp of sections for this hive; also a sheet of enameled cloth to cover it with."

"One of your clamps, Mr. Manum, will not cover the brood-chamber; do you not want two clamps?"

"No, I put on only one clamp at first; and after four or five days, if the honey continues to come in, you may put on another."

"Do you like such small clamps as well as *whole* clamps that cover the whole hive?"

"Yes, for several reasons. First, they are much nicer to handle in the apiary and in the honey-house. In the next place, if I used large clamps holding 32 one-pound sections instead of clamps that hold only 16 sections, they would be larger than the bees ought to have at this time. It would be giving too much room at first; and, again, at the close of the honey season I find it very convenient to taper off with these small clamps. There, I place it on the further side of the hive from me; now cover the clamp with the enameled cloth, black side down, and lay the half honey-board under the hive where it will be out of the way until it is wanted after the honey season is over. There is a swarm coming out!"

"Where?"

"From No. 60; get me the swarm-catcher and I will show you how I do it. There, open the catcher-cage and hold it to the entrance and catch as many bees as you can and close it; lay it down and watch for the queen; as she is clipped she can't fly. There she is. Now I take her and put her in this little round pocket-cage that has a small wire hook to it, and hang this cage outside the catcher. It would be as well to put the queen right in the catcher; but in doing so some of the bees would escape; and, besides, by having the queen in this small cage she can be handled better than in the large catcher-cage. Now I see the swarm is circling over the north side of the yard. I take the catcher and set it up directly under the swarm, and leave them to themselves and go about putting on boxes as before, at the same time keeping an eye on the swarm. As I have explained to you how to hive the bees, it is not necessary that I repeat it, for I see you hived those six swarms yesterday all right. The next time I come I will show you about tiering up the clamps, preventing second swarms, contracting, etc.

"Now one word before I go. Be sure to keep a close lookout for swarms, because it is much easier to get the queen as she comes out of the hive than to hunt for her if she gets in the grass; and, besides, the sooner you get the catcher set up, the more likely you will be to catch the swarm and prevent their clustering in a tree or returning to the hive. Hence when you see a swarm coming out, *hurry* to it at once. Yes, *run* if you are a slow walker."

A. E. MANUM.

Bristol, Vermont.

There is one thing I don't like about the above. You let the boys all go trout-fishing, and then you did not take even one line to tell what luck you had, nor whether the trout were good, etc. Now, when I get my vacation to go up your way, I am going trout-fishing, and I am going to tell the

readers of GLEANINGS all about it. Probably a great many of them never saw a speckled trout at all, and more of them never tasted one. You folks away up in Vermont need not think you are going to monopolize *all* the good things.—Your plan of driving out ants is unique. Why, just think of it! Tear off a piece of tarred paper, and toss it into the hive. Mrs. S., down in the lunch-room, just told me that the ants were getting into the granulated sugar. I guess I'll "holler" to her to throw in a piece of tarred paper. The packers are using lots of it in the adjoining room. There is another reason for favoring clamps holding 16 sections instead of 32. A good many people would buy a clamp of 16 when they would not buy 32—that is, if you sell them in the clamp.—By all means, run when swarms are out. If you can not get up enthusiasm enough to *run* in swarming time, you will never succeed as a bee-keeper.

SETTING BEES OUT.

SHALL WE PUT THEM ON THEIR OLD STANDS,
OR SET THEM OUT AS CONVENIENCE DICTATES?

I CAN see that some of our best authorities differ on questions of vital importance to bee-keepers; and while this shows independence of thought, and perhaps, in some instances, a variation of circumstances which we do not take into consideration, yet there is one point which, so far as I can now see, there is a variation of opinion upon, which must be largely due to an expression of opinion without careful observation. The question is as to whether bees locate themselves afresh after being in winter quarters, or if, after months of confinement, they simply fly out; and if the hive has been on a new stand they return to the old location. I see no less an authority than "Langstroth on the Honey-Bee," revised by Dadant, considers it important to have them placed upon their old stands. Now, I have been taught to the contrary, and always preached to the contrary, but I could not say who was correct. Considering the question a somewhat important one, especially if a part only of the bees would be set out each day, I observed closely this spring. The bees were not placed upon their old stands when taken out, and they were set out partially one day and more later; half of them were moved to an entirely new yard, three-fourths of a mile away, and I can say with certainty that the bees did not fly out and return to the old stands, in those instances at least. Now, I claim there is enough to attend to that requires all our time and energies; therefore if there is nothing to be gained by observing and marking the place and hive of each colony, let us not do it. I would substitute the weighing of every colony at the close of the honey season; again when going into winter quarters; again when issuing from the winter repository, and again after the colony has had a cleansing flight. I believe an extensive test of this kind would give us information of value, and would prevent the loss of many colonies. My bees consumed an average of about 6 lbs. per colony in the front row, probably 11 lbs. in the back row, and the lowest consumption was 3 lbs.; the highest, I believe, 19 lbs., which

shows me the necessity of having not less than 20 lbs. of stores to go into winter quarters with.

A BOUNTIFUL HARVEST.

I have thought a good deal this winter of the prospect for 1889 for a honey harvest. You know the past two seasons have been none too good. The last year, in fact, as an occupation alone, meant starvation to many. Now, if the farmer had such a failure of crops, we should have prayed all over the land, asking God for a bountiful harvest. Now, I know you and many of us have faith in prayer; why, then, should we not "ask in faith, nothing wavering"? Of course, we know in this, as in all temporal matters, we should say, "God willing."

R. F. HOLTERMANN.

Brantford, Canada.

I believe I agree with you—or at least pretty nearly so. When bees are moved to an out-apiary—say for three or four weeks—they will certainly remember their old stand and make trouble if you don't put them back on their old stand when you get back; but after having been in the same place for *three or four months* I am of the opinion that there will not be enough going back to make it worth our while to be very precise about it.

MY BEE-CELLAR AND WINTERING REPORT.

SAVING STORES BY UNDERGROUND WINTERING.

PERHAPS it is getting a little late to talk about wintering, but I think a record of my experience last winter may be of interest to some. Previous to last winter I had always wintered out of doors, except for a couple of small experiments with cellar wintering under unfavorable circumstances. But although I had never had any serious losses, and had usually had the best of success in outdoor wintering, I have long wanted to try wintering in the cellar, provided I could make a cellar I considered satisfactory. I did not want to be obliged to fuss with hard-coal fires, oil-stoves, sub-earth ventilators, etc., to keep the temperature up or down. I thought a cellar ought to take care of itself, and such a cellar I now have.

My apiary is situated just on the edge of a bluff about 70 feet high. At the bottom of this bluff is a vein of coal, scarcely thick enough to be profitably worked, yet mined to some extent. A year ago last winter I set two men at work to run a "drift" directly under my apiary. When completed as far as I cared to have it, it was a hole from three to four feet square, running 60 feet straight into the bluff, then at right angles to form a chamber. This was my wintering-cellar. Well drained, propped, and secured, it cost me nothing. Sixty feet away from the outside air in any direction, changes of temperature outside could scarcely affect it, hardly a ray of daylight could ever come, and no sound or shock ever came from the outside world, except the very faint rumble of a train passing near by on the bluff above.

Between Nov. 24 and Dec. 4 I put into this cellar 31 colonies of bees. Until Jan. 10 the mouth of the mine was left entirely open, the temperature inside ranging from 45 to 50°. I then put in a rough board door, having numerous cracks through and around it, but no other provision for ventilation.

The temperature now rose to 52°, never going below 51, and only once rising to 55, after long-continued warm weather, 70° outside, in the shade. I had feared that the cellar would be rather damp; but it did not prove so, and very few combs showed any mold. The bees were quiet all through the winter; and when removed, most of them Apr. 10, they were clean, dry, and slim-bodied, only two showing any signs of diarrhea. All were alive, though two queenless colonies had to be united.

I have just examined all thoroughly; and in amount of brood and bees they compare very favorably with those wintered out of doors. The saving of honey was very marked. I am sorry that I did not weigh each and keep a record; but to the best of my belief and judgment there was an average saving of six pounds of honey per colony.

I make this report, not simply because it is a successful instance of cellar wintering, but to show that bees will live, keep quiet, and thrive, in a cellar much warmer than is usually considered proper. If may, too, give a hint on cellar construction to some.

Of 85 colonies wintered out of doors, all were alive, but two were queenless, and were accordingly united, which I think closes the list of my winter losses.

J. A. GREEN.

Dayton, Ill., Apr. 27, 1889.

Well, friend Green, you have a bee-cellar that is all right, I should think, if anybody has, unless, indeed, from 50 to 55 is too warm. Why not leave the openings unobstructed, so as to reduce it from 45 to 50? You say it cost you nothing. Surely running a drift 60 feet must have cost quite a little sum of money. I am curious about the matter, because I think I can get a spring for irrigating by running a tunnel horizontally into a side-hill; and I wish that somebody would tell me the cheapest way to do it. I suppose a 4 to 6 inch tile would answer just as well as a tunnel, if large enough for a man to crawl in. But how am I to run a tile, say 200 or 300 feet into the hillside? Some of the readers of GLEANINGS who are used to coal-mining can perhaps tell me how to do it cheapest. I very much prefer tile to a wooden tunnel. So far as I know, wood seems to be the only material used for running into a hill.

THE ALABAMA "BLACK BELT."

FRIEND CURTIS SUGGESTS EMPLOYMENT FOR OUR LEISURE HOURS.

FRIEND ROOT:—It is a long time since my name has appeared in GLEANINGS; but our work among the freedmen, in which I have been engaged for the last ten years, is too taxing on time and strength to allow much writing on outside subjects. I generally manage, however, to glance through GLEANINGS, especially "Our Homes;" and your California notes, and the Question-box, have intensely interested and greatly profited me.

The answers to Question 104, about the employment of our leisure hours, have particularly rejoiced me. Can any other secular profession show so many earnest Christian workers? The fact so

often exemplified in GLEANINGS, that very many of our most prominent and successful bee-keepers are deeply interested in all Christian work, encourages me to tell a little about our work of "spreading the knowledge of the truth as it is in Jesus." As brother Hasty says, it is *our* great business; and with us only leisure hours can be spent among our little golden workers, much as I love them.

For many years I have been deeply impressed with the terrible destitution of our country districts in the South—especially in the seventeen counties of what is called the "Black Belt of Alabama." This is a belt of rich agricultural lands, mostly black in color, containing magnificent bee pasturage, by the way, and running from southeast to northwest across the State into Mississippi. Here were the great slave-plantations before the war, and here the freedmen and their descendants have remained and increased until they outnumber the whites five to one. As the vast majority of the whites are in the cities and larger villages, the country population is almost wholly black. There are perhaps 30,000 colored people in the cities and villages of this Black Belt, where they have good schools and churches, and are improving rapidly; but at least 450,000 are on the plantations, where no missionary work is being done to any extent, and the public-school fund is so deplorably inadequate, and so poorly administered, that the statistics show that there are actually many more illiterates now than there were 20 years ago; i. e., the State has not nearly begun to educate the *increase*. The dense ignorance, superstition, immorality, and poverty of these thickly populated country districts can scarcely be imagined until seen. The country preachers, who wield great influence among these people, are in many instances worse than the people themselves. I have had five preachers at work for me at one time, who could not read a word of the Scriptures. They pretend to expound or write their names, and one has just been convicted of hog-stealing in an aggravated form. I have heard two preachers maintain in public that they were better preachers because they could not read a word, and therefore had to be taught by direct inspiration of the Holy Ghost. Another, a woman, claimed to be a great prophet. She had killed a woman by order of the Almighty, and raised her to life again, she said, and the people swallowed it all without a protest.

Some years ago, in our Selma ministers' meeting, the question of the evangelization of these country districts was raised. Brother Woodsmall, a Baptist missionary who had spent many years in the South, travelling extensively among the colored churches, said that it was his opinion, that, in the thickly settled cotton districts, the people were growing worse instead of better. A presiding elder of the A. M. E. Church (colored) followed in a similar strain with some terrible illustrations from his observation. I then proposed a plan for a self-supporting missionary and educational work, which, after much thought and prayer, and years of careful observation and experiment, is now being successfully carried out by the Industrial Missionary Association of Alabama. This is a stock company, organized under the laws of Alabama, with the purpose of buying plantations, renting them out to the colored people, and using the rents and income to supplement the public-school fund, and aid the people in supporting a more enlighten-

ed ministry. Many of these plantations can be bought at such low prices, on account of the rapidly increasing numerical preponderance of the colored people making it unpleasant for the whites to remain, that the rents will pay from 15 to 40 per cent on the purchase money, making quite an income for missionary work.

The negroes have been made and kept poor in very many instances, not so much by excessive rents, which are cheaper here than in the North, as by the excessive and often fraudulent "advances," which eat up the crop before it is made, and the ignorance and unskillful management of the tenant himself. Justice, fair dealing, advice, and instruction in improved methods of agriculture, and in household economies, together with improved schools and churches, will do wonders toward helping the colored man to help himself; and as soon as possible we mean to sell to each renter his homestead, invest the money in other plantations, and thus turn it over and over, and keep it working for the Lord and his people. This is not a new experiment. For four years we have been trying it, with very limited means, to be sure; yet we have two churches and schools under our auspices, and feel more than ever confident that this is the most efficient method and practical plan of reaching these, the most destitute regions in all our land. If we could command the means we could do more in this way to help solve the vexed "negro problem," which is attracting so much attention and discussion of late, than by any other plan that has been proposed. We have now decided to appeal to the public for help to extend our work, hence the incorporation of our association, in which we cordially invite all our friends and all who desire to see this "open sore" of our land healed, to take stock. Rev. J. W. Dill, of Selma, is the treasurer of the association, to whom all contributions and subscriptions for stock should be sent; and I shall be only too happy to give any further information, or answer any question, either through GLEANINGS or privately, as may be desired. It seems to me that we owe this people whom we enfranchised without educating, and who, on account of their ignorance, are in far greater danger and distress now, both from the white people and themselves, than if they had never had the right of citizenship, something more than an occasional thought or prayer. We owe them our *best help*, and what better way to help than this? I feel sure our bee-keeping fraternity will not be behind in this matter. C. B. CURTIS.

Selma, Ala., Feb. 8, 1889.

Why, old friend, you have gone and taken hold of and grappled with one of the greatest problems that stand before the people of the United States of America. One is reminded of David and his pebbles from the brook, when he went out to meet Goliath. Never mind, brother. The Lord God is with you, even if you are contending with fearful odds.

Since the above was written, Bro. Curtis has been with us, and we learn that he has been for ten years connected with the work of the American Missionary Association in the Southern States. Right here our stenographer suggests that, even if a great many of us do not know much about these things, the probability is that we shall *have* to know, whether we want to or not, very soon,

HOW TO RAISE BUCKWHEAT.

"IN THE MULTITUDE OF COUNSELORS THERE IS WISDOM."

IN answer to our call for articles on buckwheat culture, the following have been received up to date. In most localities I presume it will reach our readers in ample time to prepare the ground and get in a crop. As communications are constantly coming in, we shall have a continuation of the matter in our next issue.

BUCKWHEAT IN NEW JERSEY.

Buckwheat, like rye, is a grain which will yield a fair crop on poor ground, though of course a better one on good ground. Still, it is not advisable to manure it very highly, as it is very apt to "lodge." I doubt if the increased yield of grain would pay for the use of chemical fertilizers, while doubtless the lodging tendency would be increased. With us it is generally sown on rough, stony, or out-of-the-way fields, where a drill could not be used, and for this reason it is usually sown broadcast, using about three pecks of seed per acre. Buckwheat seems to do best on "new" ground—ground recently cleared of wood; and it is especially valuable in taming or subduing such land. Old meadows, and reclaimed lands generally, that are too "sour" to produce crops of corn are sown with buckwheat with this taming idea.

A favorite rotation for re-seeding, with grass, heavy clay lowlands, is buckwheat one year, oats the next, and grass without grain following oats, the same year. Buckwheat not being sown until the fore part of July, this allows ample time for getting heavy clay lowlands in shape for sowing. I say the fore part of July, but it is almost a superstition here to sow buckwheat "the Fourth of July, wet or dry."

I never heard of buckwheat making two crops in a single season here, but it is often sown early in spring, to be plowed under, and the land sown to buckwheat in July.

Much diversity of opinion exists about plowing buckwheat under, some claiming that it is a positive injury to the land. I think that trouble has arisen out of the practice, only when the buckwheat was plowed under while in full blossom. Avoid doing this, and you are all right. The ground should be well prepared for buckwheat. If it can be plowed some time before the grain is to be sown, at seeding time, the buckwheat sown on the plowed land, *cross-plowed* in and well harrowed, the chances for a good crop are enormously increased.

In harvesting, buckwheat is commonly cradled, before frost if possible, and preferably in the morning, while the dew is on, or on a damp day, as the grain shatters easily. As it is hard to dry the straw sufficiently for thrashing, it should be left in swaths for three or four days, then raked in bunches or gavels (again preferably while the dew is on), and set on end, unbound. It should be thrashed on a dry windy day, and should be cleaned from the chaff at once or it may heat. Even the grain, if in large quantities, may require shoveling over in the bins to prevent heating. In large amounts, or if slightly damp, thrashing by machine is the easiest way; if quite dry, it is easily thrashed by hand, two men thrashing it about as

fast as two horses can haul it to the barn; or if the barn-floor is reasonably large, the buckwheat may be spread thickly on it in a circle, and horses driven around over it. This latter method will give the cleanest grain and smallest proportion of cracked kernels. But use the machine every time unless the buckwheat is dry.

The straw is useless for litter, but it is the best thing obtainable for the bottom of the barn-yard, coming up from the ground so clean in the spring that very little scraping is necessary.

The new Japanese buckwheat, introduced here some three years ago, is growing rapidly in favor. It produces much more grain to the acre, and more and better flour to the bushel, than any of the old kinds. With no previous intimation, I detected the superior flavor of the Japanese flour the first morning we had cakes made from it. We had immediately before been using silverhull flour.

Bees gathered very little honey here from common buckwheat last season, but they worked freely on the Japanese.

R. A. LEARNED.

Newton, N. J., May, 1889.

BUCKWHEAT IN CANADA.

To prepare the ground for buckwheat, if stubble land, plow in the fall, then in spring stir the ground frequently, to make weed seeds germinate, and to destroy them in turn when started. If the field needs manure, and you have it to spare, put it on and plow, say about ten days before sowing the seed, and drag down again. This will cause an immense lot of noxious seeds to germinate; drag again to kill these and start more, and now the process of putting in the seed will kill these. If not underdrained, and if the soil is of a clay nature, open water-furrows, and roll; and I feel pretty sure you will feel happy every time you take a look at that buckwheat field. A crop of any kind of grain growing luxuriantly upon nice, clean, well-pulverized soil, can not fail to give pleasure, and make one think of God and his goodness. If a piece of sod be fixed upon, I would plow it about 12 to 14 days before sowing, and drag frequently. A roller should follow the seed. A drill covers the seed better than a drag can cover that sown by hand.

Some cut their buckwheat in the old way—with a cradle; others use a reaper. I really don't think there is much difference in the final results, if hands be plentiful and hiring has to be done all round. Buckwheat is now mostly thrashed with a machine; however, all counted, with from one to four acres it can be thrashed more economically, I think, with flail or with horses. When the crop is ready you can go right at it, and no waiting for a machine until it rains again.

To thrash with horses, you want two teams—one with a couple of smart boys to draw to the barn. Put on just enough for one flooring. The other team, with a couple of good men, will thrash it and shake the straw off while the boys get another load. If you put on the wagon more than one flooring at a load it will get damp from the sappy straw, and thrash very tough. Proper care should be taken to have the grain dry when grinding time comes.

Some object to this crop because of its persistency in growing the following summer in the succeeding crop. Well, I always got over that difficulty by sowing oats or planting corn on the stubble land. We never sow it early in the spring, like oth-

er grain. The hot summer sun would destroy the crop, very likely nineteen times out of twenty.

A HYBRID.

Some years ago I mixed some silverhull and common buckwheat, and sowed the two kinds together. The third year the grain was nicely blended, resembling both varieties, and I fancied yielded a better crop than either of the others.

BEES AND BUCKWHEAT.

These thrive well together. With me the latter never failed to yield nectar, and always produced, I am fully persuaded, better crops because of the frequent visits of the bees.

DOES BUCKWHEAT PAY?

To the man who keeps many bees in a section of country where it is pretty sure to produce honey, I would say I certainly think it pays well, if properly handled all the way through—all depends upon that.

S. T. PETTIT.

Belmont, Ont., Can., May 1, 1889.

BUCKWHEAT IN KENTUCKY.

The ground for buckwheat should be thoroughly well prepared before the seed is ever sown, as, in fact, this is necessary for the successful growth of about any crop. Of course, the richer the ground, other things being equal, the greater will be the yield. Tolerably high bottom ground, second year's new ground, or any soil good for oats or wheat, will do for buckwheat. Ground that has been in clover, and followed with corn, is suitable, for the reason that the thorough cultivation required by corn keeps down the weeds and grass. It is not an easy matter to kill weeds after the buckwheat is up, hence the preparation of the ground the previous season is of much importance.

The ground should be broken early in the spring, before the weeds and grass begin to grow; then again when you wish to sow. It is somewhat owing to the locality and the purpose for which you are growing buckwheat as to the proper time for sowing. About the 20th of May or first of June I think is the average time, and three pecks of buckwheat is the amount usually sown on an acre. Just before sowing, the soil should be thoroughly pulverized, and leveled by harrowing.

The seed-bed should not only be deep but fine. In fact, the pulverization of the soil should be the main object; and the finer and more complete it is, the better the growth of the crop. Some practice drilling the seed and fertilizer together, but I believe the fertilizer should be applied broadcast, as it is more evenly distributed over the ground. If stable manure be used it should be well rotted, and thoroughly mingled with the soil, in order to give the field uniformity of growth. About 200 lbs. of guano to the acre should be sown, unless the ground is rich enough naturally.

When most of the seed is ripe it should be cut, and tied up in bundles. After it is thoroughly dry it should be hauled and piled or stacked in a tight-floored barn. It is also very necessary that the wagon-bed have a tight bottom, so that the shattered grain may be saved. I believe, where a person grows only a few bushels for his own use it is cheaper and easier to thrash it out with the flail. It would be much the best, when a person has much of the grain to clean, to get a separator to come to the barn and thrash it out. In this neighborhood the cost would not be over seven cents per bushel, even if the thrashing season were over.

I will only add, in conclusion, that I believe one of the best uses to which buckwheat can be put is that of feeding to hogs. By having different fields to mature at different times, we can turn our hogs into the fields from July till October.

Skilesville, Ky.

FINIS A. WOOTTON.

BUCKWHEAT IN KANSAS.

As you call for reports in regard to buckwheat, I will send you mine. Last year I raised 116 bushels—85 of Japanese and 31 of silverhull. I think the Japanese quite a bonanza. The beauty of it all is, that I was just 116 bushels ahead of nothing. As soon as my oats were off, my son plowed the stubble under. I sowed the seed broadcast. I also sowed one acre of my wheat stubble, after he had turned it under. On this I sowed 3 pecks, and secured 28 bushels of Japanese, and then lost at least 5 bushels of it in cutting.

HARVESTING BUCKWHEAT.

I cut mine with a mower. I had three hands—boys will do—to follow right after the machine, with four-tined forks. They gathered it in bunches, just as large as would dry through nicely. These bunches they lifted out of the way of the machine by the time it came around. I tried the self-rake, but I prefer the mowing-machine. The buckwheat should be cut while the dew is on. If necessary, cut all night, if you have much to cut. I hired a man to flail it out. To do this, make a platform up about two feet from the ground, of rails, and thrash it on that. I then put mine through the fanning-mill twice. Right here is the best part of the whole matter. That acre of wheat stubble on which I sowed buckwheat looks as well to-day as any of the rest of the 20 acres of wheat. The wheat is almost knee-high. When we were done sowing the other, I said to my son, "I am going to try an experiment." Ours is a Havana press-drill. The buckwheat stubble was so mellow that I just put the drill right in on the stubble. I now intend, as soon as the wheat is off, to have the wheat stubble of the whole 20 acres turned under and sown to Japanese buckwheat. But whether to sow the buckwheat with the drill or not, I should like to know, without experimenting very much. I had thought that, perhaps, if we would sow half that amount one way and then cross it with the other half of the seed, it might do. You know the old saying is, "Sow your buckwheat so that an old sheep and her lamb can lie down between the stalks;" but my idea in sowing wheat or oats is, if you want grain you must sow liberally. For buckwheat I sow about 3 pecks per acre. From our buckwheat we took off 300 lbs. of nice honey, and had all the nice buckwheat cakes and honey we wanted.

J. H. KENNEDY.

Quenemo, Osage Co., Kan., Apr. 25, 1889.

THE PROPER WAY TO RAISE BUCKWHEAT IN A DRY SEASON; HOW IT MAY BE USED TO GET RID OF THISTLES.

Having had 20 years' experience in raising buckwheat, I will give you a few pointers. First and most important of all, is to plow the ground early. Plow immediately after sowing oats or planting corn, or, in other words, one month before sowing. To kill "quack-grass," plow twice, and thoroughly harrow in with a spring-tooth harrow. Under no other conditions would I allow buckwheat ground to be plowed twice. You can kill thistles every time with buckwheat. Wait till the thistles are 15

or 20 inches high. You can then plow them entirely under by fastening a log-chain to the plow-beam and to the whiffletree of the horse that walks in the furrow. That way it will form a loop that will pull the tops in the furrow; and by having the loop just right it will cover every one. I have plowed them under when they were so large that the horses would not walk in the thistles without having leathers on their legs to prevent them from pricking them.

Buckwheat requires a great deal of moisture; and by plowing early the ground gets settled, and holds the moisture; and the result is, it will fill better.

Japanese buckwheat is 8 or 10 days later than the silverhull with me, so I sow a little earlier. On good land, 2 pecks is enough; on thin soil, 3 pecks per acre. You can increase the yield a third on thin soil by using 50 lbs. of phosphate and 50 lbs. of plaster, mixed and drilled in. I drill here between the 15th of June and the 1st of July.

Buckwheat is one of the best crops to subdue rough land. It always leaves the soil in excellent condition for potatoes or oats, or almost any crop except corn. I never could raise good corn after buckwheat—that is, until the ground was re-seeded. I raised 45 bushels of Japanese buckwheat from one bushel, sowing on $\frac{1}{4}$ of an acre. Let me say right here, that the black bees will store just as much buckwheat honey as the Italians, and, in fact, I should prefer the black. I would rather have buckwheat honey to winter bees on than basswood honey. In 1887 I extracted 75 bbls. of buckwheat honey; 10 lbs. per colony is the lightest yield that I ever got from buckwheat, on an average.

W. L. COGSHALL.

West Groton, N. Y., May, 1889.

ITEMS FROM ONE WHO HAS RAISED $\frac{3}{4}$ TONS OF BUCKWHEAT FLOUR IN A SEASON.

I have been a farmer for 38 years, and sowed buckwheat every year, more or less, each year, from 5 acres to 30 acres in a season. I have not been able to quite come up to the thousand bushels, but have had enough to make $\frac{3}{4}$ tons of flour of one year's crop, besides saving for our own use, and seed for next year.

The best way to prepare the ground for a good crop, according to my experience, is to plow, early in the season, good sod land; and, just before sowing, plow again. Drag and pulverize the soil well, and sow broadcast, and drag in the seed well. About three pecks of seed to the acre has given me best results in yields to the acre—from 25 to 40 bushels. I have sown as early as the 20th of June, and as late as July 17th. The largest yield has been from sowing from the first of July to the 8th. Location may have something to do as to time of sowing. As to risk of frost, we must be our own judge.

HARVESTING.

Cut when the grain is nearly all turned brown. When partly cured, rake and set up; twist a few straws around the top; that keeps it standing up better, if exposed to storms during time of curing out. When dry, so as to shell easily, we haul to the barn, and thrash with a machine. We have one standing in the barn, always ready for use. When thrashed we clean it up at leisure, mostly on stormy days.

The farmers in our county grow buckwheat quite extensively without fertilizers, and believe it to be an average paying crop to grow in rotation with

other crops. It always gives some honey, and sometimes large yields, and of good quality for the bees to winter on.

J. M. FRANCE.

Auburn Corners, Pa., April 29, 1889.

BUCKWHEAT AS A SUBDUER OF MARSH GRASS.

I have had considerable experience in the last few years in breaking up and subduing reclaimed swales, pond-holes, and marshes. I have found that buckwheat has done as much toward subduing the tough marsh grass as has the plow; and, in fact, there is nothing that can be sown which will yield a crop, and at the same time so effectually subdue such places as this grain. My plan is to plow these places, as well as possible, late in the fall, so as to let the winter's freezing and thawing operate upon the roots of the tough bog grass; and in the spring I harrow it down as soon as I can get upon it, and continue harrowing every two or three weeks until sowing time, which is about the 15th or 20th of June. The buckwheat should be sown earlier upon such places, for the frost is more apt to cut it than if sown upon higher ground. I sow about three pecks to the acre, in order that the ground may be well covered with the growing plant. Notwithstanding the plowing, harrowing, and cultivating, considerable of the marsh grass manages to be in a flourishing condition at the time of sowing; but the buckwheat so effectually covers the ground that the grass is killed, the weed choked, and the sod rotted nicely. In the fall, the once tough marsh sod is found to be light nice soil. If I can, I put the same piece into buckwheat the next season. Of course, when sown on such places it does not yield as much as when sown on better ground; but it pays well nevertheless. I prefer the Japanese to all other kinds.

F. N. HILTON.

Pontiac, Mich., May 4, 1889.

TWO CROPS OF BUCKWHEAT IN A SEASON.

As you may remember, I had quite a crop last season, of the Japanese variety. I also raised two crops last season from the same seed, which I forgot to mention. The first was sown some time in April. I remember it was chilled a little by two frosts after it came up, but it came on and filled well, and I gathered some of the seed as soon as ripe, and I sowed a small patch for a second crop, just enough for a test of raising two crops in one season from the same seed. It grew and ripened before the frosts of fall. The early part of the season was favorable for buckwheat. It might not do as well every year; if it would it would be of great advantage to know that fact. That early crop of buckwheat was quite a surprise to some old buckwheat-growers. I would sow with a drill. Drill in with chemical fertilizer, unless the soil is already very good. Load it on to a wagon, and haul to a thrasher in the neighborhood, if too small a crop to pay to employ a machine expressly for the purpose, and cut with reaper and binder, without tying.

H. R. BOARDMAN.

East Townsend, O., April 19, 1889.

BUCKWHEAT GROWING WHEN EVERY THING ELSE IS DESTROYED BY INSECTS.

To make a success in raising buckwheat requires moderately rich soil; if too rich it is apt to grow too rank, and lodge down. Fresh-plowed land, harrowed down fine and mellow, is needed. In this latitude we sow from the 10th to the 20th of June. Sow $\frac{1}{4}$ bushels to the acre, on rich land, or $\frac{3}{4}$ bushel on sandy land. Cut with a cradle, self-rake, reaper, or

self-binder. Cut when the dew is on, or a little damp, as it shells less. Set it up, one bundle in a place, to cure. When thoroughly dry, haul direct to the machine, and thrash, as every time you handle it it will shell some. I have sown early, for the bees to work on, and one year we had cool weather when it was filling, and the yield was good. But early sowing is not advisable, as buckwheat will not fill well in hot sultry weather. There is a large quantity raised here every year, and it is considered a paying crop. We often get a crop of this grain, when the insects destroy all other kinds.

Eau Claire, Wis., April 19, 1889. C. B. JACKSON.

BUCKWHEAT A FAVORITE CROP FOR BRUSHY LAND.

I see in GLEANINGS you ask about buckwheat. I have lived in a buckwheat country all my life, and know something about it. It is a favorite crop for brushy land, the crop growing so rank as to subdue briars and brush. We sow from the first to the 12th of July; if earlier, the sun burns it; if later, the frost is apt to catch it. Ground which is too light for corn will raise good buckwheat. No crop will better respond to a good fertilizer. We gather tons of honey from it. It can be thrashed readily by hand if dry, but it is impossible if damp. We always thrash by machine.

JAPANESE BUCKWHEAT TO TAKE THE PLACE OF CORN.

The Japanese buckwheat I got from you beats any I ever saw. If it continues as well it will surely take the place of corn, to a great extent.

Meshoppen, Pa., Apr. 27, 1889. C. A. DEAN.

BUCKWHEAT IN THE "CORN-BELT;" BUCKWHEAT TO EXTERMINATE WEEDS.

In this latitude, or, rather, in this corn-belt, I think the best results are generally obtained by sowing about the first week in June. Land should be plowed a week or two beforehand, to give weeds a chance to start; then work thoroughly, and sow $\frac{1}{2}$ bushel, or a little more, per acre. I sow broadcast. Land which is so soddy as to be almost useless to plow in fall or early spring for other crops, can be subdued with buckwheat; and it is good to sow in a young orchard which is to be cultivated.

Speaking of corn-belts, one might be surprised at the crookedness of isothermal lines. A very good corn-belt map, showing mean temperature during the growing season, can be found in the seed catalogue of J. C. Vaughn, Chicago.

HARVESTING.

If you do not use a grain-cradle, it can be mown carefully with a scythe. If not convenient to draw it to a thrashing-machine, a good way is to build an open rack of slats across a wagon-box. Some put the box on a sled, so as to have it low down. Drive into the field, and pitch a few forkfuls of buckwheat on to the rack, and hit it a few sharp blows with the pitchfork. The grain will rattle down into the box, when the straw can be pushed off, and a new supply put on. Two men can do this rapidly, and I have heard of good-sized fields of buckwheat being thrashed in this way.

B. HASSETT.

Howard Center, Howard Co., Ia.

EARLY AND SELF-SOWN BUCKWHEAT.

I have never sown buckwheat in April or May, but this I know: Buckwheat that comes up from last year's crop always fills well in this latitude. Only last week I was talking with James Mahary (a successful farmer) upon this very point, and he

said he never knew self-sown buckwheat fail to fill well, and that last year (a very dry one) he had a patch that would have made quite a crop had it been left to mature. I also find that many are more successful in seeding with buckwheat than oats or wheat. As I expect to sow 20 acres of Japanese buckwheat this season, at different periods, from early to late, I may know more about it next fall than now.

GEO. E. HILTON.

Fremont, Mich.

The above articles cover the whole ground, pretty nearly. Friend Kennedy, if I understand him correctly, suggests a plan of getting a crop of buckwheat without any extra expense, except the cost of the seed, and drilling it in; that is, the ground is prepared for wheat in July instead of at the usual time. Then after the crop of buckwheat is removed, the wheat is drilled in, without any further preparation of the soil. While such a course might occasionally give us as good a crop of wheat as if no buckwheat had been on the ground, I can hardly think it possible that it would invariably turn out in this way. It is true, buckwheat may take little or nothing from the soil that would be wanted for the wheat crop. Unless, however, the season were one where rains were very plentiful, I should feel quite certain that the buckwheat would rob the ground of some of the moisture needed by the wheat; at least, my experience has been that a crop of almost any kind takes the moisture from the soil to a much greater extent than where the ground is harrowed frequently, without allowing it to bear any crop at all. I once plowed under a heavy turf of very hard stiff wild grass. After turning over the sod I raised a tolerable crop of buckwheat. Thinking the sod was rotted and the grass dead, after the buckwheat was taken off I turned it over again, to put on rye. To my great astonishment, the grass that had been turned over more than two months before, started to grow almost all over the field; and after letting it lie all winter, and turning it over again, I had a hard time in breaking the sod up in the spring. From this I judged that a crop of buckwheat might be taken from the ground without the roots going down more than a few inches, and also without taking very much if any thing from the fertility of the soil.

Some allusion has been made in the articles above, in regard to breaking the grain in thrashing; and several have stated that a machine breaks the grain much more than thrashing by hand. Where it is tramped out by horses on a barn floor, much of the grain will be crushed if you are not very careful. I strongly favor the idea of raising the grain up from the floor by rails, or something of the sort, letting the grain rattle down through where it will not suffer injury by walking over the floor. I am inclined to think, also, that flails will do better execution when the grain is raised up on rails.

I think it is quite true, that black bees take to buckwheat honey rather more than the Italians do. Our best colonies for gathering buckwheat honey for several different seasons seemed to be hybrids.

DR. MASON STANDS UP AND EXPLAINS.

CAREFUL STATISTICS ON THE AVERAGE CONSUMPTION OF STORES DURING WINTER.

WELL, friend Root, I don't understand why you should single me out, and "order me around" as you have on page 61, where you say, "Doctor, stand up and tell us what you mean by such a statement as that." And you are reminded "of the man who brought home two stoves," etc. I can't see the relation my statement has to "two stoves." Perhaps it was pretty cold weather when you were bossing me around, or my statement may have had a cooling effect upon you. At any rate, I don't see why I should be ordered to explain.

Prof. Cook reports the average consumption of stores by his bees at less than mine, and then, as usual, you come out ahead, for you say, "Come to think of it, I have done even better than that." Perhaps I have done better than you; but as you don't tell just how much "a very small amount" is, you have a chance to come out ahead yet. I too "have seen a weak colony consume only a very small amount of stores during winter," and not be profitable during the following season. I have also had a fair colony consume but $3\frac{1}{4}$ pounds in wintering, and be a right royal one the next season, making as good returns as any. I have also had a good colony consume 20 pounds in the cellar, and starve to death before it came time to set them out in the spring. I am not the only one who gives two weights as the average consumption of stores, and just notice the difference!

H. R. Boardman, 25 to 30 lbs., indoors.

Mrs. L. Harrison, 9 to 10 lbs., in cellar.

" " 18 to 20 lbs., outdoors.

Dr. Miller, 20 lbs., in cellar; dead bees included.

Geo. Grimm, 15 to 20 lbs., in cellar.

C. F. Muth, 15 to 25 lbs., outdoors.

Mr. Elwood, 12 to 14 lbs., in cellar.

James A. Green, 18 lbs., outdoors.

G. M. Doolittle, 14 lbs., outdoors; 10 lbs., in cellar.

Prof. Cook, 7 lbs., in cellar; 14 lbs., outdoors.

James Heddon, 20 lbs., outdoors; 10 lbs., indoors.

A. B. Mason, 6 to 11 lbs., in cellar.

Muth, Green, Doolittle, Cook, and Heddon, outdoors? And Dr. Miller's colonies consumed as much or more in the cellar than did those of the others outdoors; for if Mr. Muth's figures were reduced to one number it would be 20 lbs., outdoors.

I believe Mr. Boardman knew just what he was saying when he said from 25 to 30 lbs., and I've been wondering if the others were not guessing.

Undoubtedly Mr. Boardman answered the question, from October to May. My answer was for the time the colonies were in the cellar, and I presume Prof. Cook's was also, as may have been some of the others. The question (102), asked in brief, is, "What is your average consumption of stores per colony from October to May? State whether for outdoor or cellar."

Messrs. Boardman, Green, and Muth, take less than a line to answer the question, and Messrs. L. C. Root, Dadant & Son, Grimm, and myself, take a line; Mr. Doolittle, a little over a line; Mrs. Harrison nearly two lines, and so on up; Mr. Heddon occupies eight lines. Now, friend Heddon, if this meets your vigilant eye, please just keep still, for I've got trouble enough on hand now, and don't want you to get after me; and if you will let me alone I'll give Rambler a blackboard exercise next spring on the "Pollen Theory" (if I feel like it). And, friend Root, if you won't let any one "pitch into me" after all this rambling, I'll tell you what I meant by my answer. It is this: Some winters the average consumption of stores by my colonies, while in the cellar, has been as low as 6 lbs., and sometimes as high as 11 lbs., and all the way between; but seldom over 9 lbs., and usually less than 8. Now, perhaps some "smart Elick" will want to know how I know what my colonies have done, and just as likely as not, I may have so trodden on your toes, Mr. Editor, as to set you to asking me some foolish questions, and ordering me around some more, but I'll just take the snap out of you by answering, before any of you ask, by giving you a sample sheet of my book-keeping; and let me say it is no small job to keep such a record; but "it is lots of fun," and comes right handy when such questions are asked, and "Rambler's" are to be educated. Remember, friend Root, I am to be let alone. Here is the sample.

No. of Colony	1886.	Weight, Oct. 6, 7.	No. of Frames.	Weight of Frames.	Spaces of Bees.	Weight of Bees.	Weight of Stores.	Weight less Stores.	Fed Oct. 7, 8, 9.	Should weigh Oct. 10.	Do weigh.	Should be Stores.	Are Stores.	Lost in Feeding.	Weight Nov. 13.	Weight of Stores.	Loss or Gain from Oct. 10 to Nov. 13	Weight March 20, 1887.	Spaces of Bees.	Weight of Bees.	Loss of Bees.	Loss of Stores.			
138	4	6	7-2	7	3-1	3-13	34	6	8	48	4	11-1	10	1	13	43-8	9	2	1	37	8	73	10	6	A space of bees weighs ounces.
265	9	12	8	9	9	4	21	438	8	59	12	21	4	21	49	38	820	14	4	20	Starved	4	20	A comb weighs 1 lb. 3 oz.	
356	6		8	9	8	4	18	837	8	0	56	18	8	18	8	57	19	8	17	83	8	8	9	8	A division-board weighs 1 lb. 6 oz.
			300				319	140-2386	14	25		538	13												A hive weighs 23 lbs.

Now, all the above names, except the last one, are among those of our most reliable bee-keepers. I can't imagine why you should question the truthfulness of my statement. Prof. Cook's average is less than mine. Why not ask him to "stand up" and explain? My average would be $8\frac{1}{2}$ lbs.; and Mrs. Harrison, Mr. Doolittle, and Mr. Heddon give only $1\frac{1}{2}$ lbs. more than I do, as their average.

If indoor wintering is such a saving, why not ask Mr. Boardman to "stand up" and explain how it comes that his colonies indoors consume more stores than do those of Mrs. Harrison, Messrs.

Average No. of frames per colony	71.
Average No. of pounds of bees	38.
Average No. of pounds of stores Oct. 10.	29.
Average No. of pounds of stores Fed Oct. 7, 8, 9.	6.
Average No. of pounds of stores there should be Oct. 10.	20.
Average No. of pounds of stores there was Oct. 10.	19.
Average No. of pounds of stores Nov. 13.	17.
Average No. of pounds lost in feeding.	1.
Average No. of pounds lost from Oct. 10 to Nov. 13.	1.
Average No. of pounds of stores lost in wintering.	8.
Average loss of bees in wintering	2 oz.

I don't give this as a model way of keeping track of wintering, but as my way, and to show that I knew just what I was talking about when I gave my answer. There is one item more that I wish I had kept, and that is the gain in bees in each colony

while in winter quarters. One item I have not transferred from my record, and that is the "Pollen Theory," for I *may* want to put that on my black-board in the spring for "Rambler" to look at.

The record from which this is taken is of 42 colonies, and I have given some of the footings to show how I do it. The figures given are for pounds and ounces; as, in first left-hand column, to the right of colony No. 1 the 38-4 means 38 lbs. 4 oz. In the sixth column from the right can be seen -1, -1-4,

1-, which means that colony No. 1 lost, or was minus, 1 lb.; No. 26 lost, or was minus, 1 lb. and 4 oz.; and No. 35 gained, or was plus, 1 lb. In the second column from the right is shown that colony No. 1 had as many bees when taken out March 30 as when put in Nov. 13. Not but that there was a loss of bees from the hive in winter quarters, for there was, but there had been enough raised to supply the loss, for they were breeding nicely when set out. No. 26 was - (minus) 4 lbs. of bees and 20 lbs. of honey; had a slight touch of diarrhea, and brood dead in the cells before hatching. No. 35 was - (minus) 8 oz. of bees. My hives are the eight-frame Langstroth size, and 11 of them were put in winter quarters with 9 frames in each, and had bees in all the spaces.

Eleven had 8 frames in each, and bees in all the spaces.

Seven had 7	"	"	"	"
Seven had 6	"	"	"	"
Four had 5	"	"	"	"
One had 4	"	"	"	"
One had 3	"	"	"	"

So you will see that they were not small colonies by any means.

Now, if your illustration of the two stoves saving all the wood will apply in wintering bees, so that, if *one* cellar saves half the feed, *two* will save it *all*, just send me another cellar, and send on your bees, and I'll winter them for you; and if you'll *remove all the "bee bread"* (sometimes called pollen) they shan't have diarrhea either. It seems the height of folly to winter outdoors when it takes, as you say, 30 to 40 lbs., and it takes from 6 to 15 lbs. to winter in a cellar or specially prepared repository. Look at our friend H. R. Boardman, whom you call "the man who winters his bees without loss," and justly too. He's got too much sense to winter his hundreds of colonies outdoors. And there is the Hon. R. L. Taylor, too, with his hundreds of colonies, who has too much of that same desirable commodity to practice outdoor wintering. And I might name scores of large and small bee-keepers who winter in the same way as do Messrs. Boardman and Taylor, and with equal success; and in this connection don't forget to include your humble servant.

I want to explain why I sometimes have so little stores in hives for wintering. It is enough to carry the bees through, and saves feeding sugar syrup, or good honey, and the honey I have on hand I don't like to risk to winter on; but as soon as set out in spring, the honey of poor quality can be fed in abundance.

Another thing: I believe it is pretty generally conceded, that an abundance of stores—that is, more than will in all probability be needed, conduces to breeding; and a goodly majority who have expressed themselves don't want their bees to commence rearing brood till set out of winter quarters. I have not been in the habit of putting bees in winter quarters before about Nov. 10, and have taken them out usually in March, or the first of April, so Messrs. J. Nebel & Son are right when, on page 127,

they say that I "may be correct also; likely not, from October to May."

I don't just exactly like your way of putting your question in your closing remarks on Question 102. You say, "Another question arises—Which is the more profitable—colonies that require from 20 to 25 lbs. to carry them through, or those that will get along on from 5 to 10 lbs.? Why not say, "Or those that require from 5 to 10 lbs.," etc., instead of "that will get along on 5 to 10 lbs.?" I have had some experience in this matter, and am satisfied, that, with me, it is not the amount of stores consumed that tells how profitable a colony will prove to be. Colony No. 22, whose record is in the table, a part of which is given above, was a good average colony, and consumed only 5 lbs. of stores, and was as good a colony as I had in 1887. No. 13 was equally strong, and had 5½ lbs. more in stores, and consumed 15 lbs. of stores, and was one of the poorest colonies I had the following season, and I could give plenty of such contrasts from the same table. J. Nebel & Son, above referred to, give about the same average I did, and add, "We think those numbers would be very near an average for ours. Only one colony consumed less than 6 lbs., and that one consumed only 3 lbs., and was a strong colony. Said colony did as well as any that season, 1886."

Now, friend Root, if there is any thing else you want me to "stand up" for, just "give me the wink" and I'll be on my feet as soon as possible.

Auburndale, Ohio.

A. B. MASON.

There, there, doctor, I will own up and apologize, and take back *every* thing I said. I supposed that you were going to leave me at least a little bit of a corner wherein to defend myself, and argue the point. Your array of figures, however, covering several years as they do, reminds me of the witness, who, when asked how far he stood from the fight, replied, "Just 14 feet 11 inches." There was a smile at his intense accuracy; and when asked how he came to be able to give the figures just to an inch, he replied that he expected that some blundering fool of a lawyer might ask that very question, therefore he took out his rule and measured it. To get right down to the real facts, we are exceedingly obliged to you; and I do not know but that we shall have to admit that there is certainly a great saving in stores by wintering in a repository, whether there is a saving of bees or not. It takes some pains and care to accomplish this saving in stores, it is true. Then the question arises, "How many of us are there who are willing to take this pains?" or, perhaps, "How many can succeed as well as you and friend Boardman do?" At present I prefer to have our bees on their summer stands—at least where they winter as safely as they have been doing for years past. Ernest may, however, conclude to adopt some other way. He seems to have managed nicely with one colony during this past winter, and it has been one of the mildest I have ever known. We are glad to know, too, that you have proved pretty conclusively that a good strong colony of bees may winter on a very small amount of stores—even so little as five pounds. Thank you, doctor; the "wink" will be forthcoming before a great many days, you may be pretty sure.

RATE OF FLIGHT OF BEES.

AN INTERESTING QUESTION.

PROF. COOK'S articles on entomology are very interesting to me. I believe he is doing a work for bee-keepers that no one else can do, and we owe him well-deserved gratitude. I see that in his article on the wings of insects, in *GLEANINGS* for April 1, he speaks of the rate of flight of bees, and says, "The bee flies often twenty miles an hour." I should like to have him dwell a little more upon this special point, as it has been a hobby of mine, and I have devoted considerable time during the last four seasons to experiments upon this very point. I have found the average rate of flight of bees to be twelve miles per hour, on trips of less than two miles: further than that, about ten miles per hour. Viewed from what data I have, I should say that the professor put the rate of flight too high. But perhaps he meant that bees often fly for short distances at that rate. I am well aware that the out-going bee flies swifter than the incoming, loaded bee, but as yet I have not been successful in finding the difference of speed. My experiments have been confined to flight from bait, and of course included the round trip.

WILLIAM E. GOULD.

Fremont, Mich., Apr. 5, 1889.

Your rate of speed must be very low, friend G. Prof. Cook's rate of flight, as recorded in his article, would seem to be rather an under-estimate than an over-statement, judging by the account of the experiment below. If Mr. Saunders' experiments were carefully conducted, then a bee *can* fly, under favorable conditions, 45 miles per hour—over twice Prof. Cook's rate, and four times yours. In experiments of this kind, the factor of wind, if blowing, and its direction with reference to the flight of the bees, should be taken into account. To make the experiment accurate, the air should be perfectly still. Will Mr. Saunders tell us the condition of the atmosphere at the time of his experiment? We presume, however, it was quiet, as it was toward evening.

ANOTHER RACE BETWEEN BEES AND CARRIER-PIGEONS; THE BEE DECLARED THE WINNER AGAIN.

In *GLEANINGS* for March 15 are a few remarks on bees vs. pigeons. I have some very fine carrier-pigeons; some of them have flown 400 miles in 12 hours, and many times have my birds been liberated in New York city, and reached Gloversville at noon, same day. In June of last year I sent to Johnstown, which is situated about four miles, air-line, or as a bird would fly, to Gloversville, six bees—four drones and two workers, and six of my best selected birds. They were all liberated at the same time, at five o'clock sharp, in the afternoon. The first bee arrived six minutes after five; first pigeon, ten seconds later; second bee, eight minutes past; after that, pigeons and bees came in so quickly one after the other that it was impossible to get correct time. The bees, on being liberated, took a perfectly straight course, as far as the eye could follow them; the pigeons circled in the air twice before they could see their home. This proves that bees fly more by instinct than sight, and pigeons by sight and observation.

I wish you would make *GLEANINGS* a weekly

journal. It is enjoyed much by us, and we are going to have it bound and put in our library.

A. C. SAUNDERS.

Gloversville, N. Y., Mar. 25, 1889.

The account of your experiment is extremely interesting; especially so as it substantiates the results of a similar experiment tried in Germany. From your experiment it is evident that a bee can keep up with the average passenger train, but it would seem not with the fastest-running train (i. e., at a speed of a mile a minute).—Thanks for your kind words; but if we were to make the journal a weekly, we could hardly illustrate or get it up in the style we now do.

In addition to what Ernest says, I wish to express my surprise that the bees got home at all, after having been carried four miles. In bee-hunting I have frequently carried bees with the bait so far from their home that they scattered, one in one direction and another in another, and seemed to be entirely lost as to the direction they should take, and we did not carry them four miles either. I should be glad to hear from others who have had experience in bee-hunting—any who may have made the experiment in carrying bees dusted with flour, or painted, some distance from their hives, in order to let them go back. Very likely friend S. had his bees so well marked there was no possibility of a mistake. If so, he succeeded better than I should have expected.

A BEE-HIVE ON SCALES.

HOW IT MAY BE OF BENEFIT TO THE BEE-KEEPER. TABLES OF HONEY YIELDS.

THE following excellent article from the pen of A. E. Manum, we take pleasure in copying from that spicy little journal the *Bee Hive*:

How many pounds of honey will a swarm of bees gather in one day? is a question that has often been asked. With your permission, Mr. Editor, I will endeavor to give the public my experience, through the columns of your practical little *Bee Hive*. For fifteen years I have kept a swarm of bees on scales in each of my apiaries, during the summer. Not only for the purpose of knowing how much honey a single colony can store in one day, but to assist in determining just what the bees are doing, from day to day, I deem it very essential that I should know just how much honey is being gathered each day, not so much for the pleasure of having a record to refer to in the future, but to serve as a guide by which to govern my operations during the honey-harvest.

Those who have never kept a hive on scales can not estimate the advantages to be derived by such a practice. We not only have a brief record to refer to in after years, but we are enabled to judge very correctly every day what the bees are doing, and also know, to a certainty, when the honey-flow begins, when it is at its height, and when it is drawing to a close. The amount of honey that a colony will gather in one day, I find to vary greatly in different localities. I find that apiaries located only three miles apart vary in the amount of honey stored in each. The condition of the weather has much to do with the amount of honey that will be gathered each day, as a few hours of unfavorable weather in the middle of the day will make quite a difference with our scale-hive record. Hence the apiarist must take the condition of the weather into account, and be governed accordingly in making his calculations. I have observed that, in a season when the atmosphere is well charged with electricity, and when electric shocks are frequent, honey

will be much more abundant than when electric shocks are less frequent.

When the lightnings flash and threaten our lives,
The bees will be sure to fill up their hives.

By the use of scales we are enabled to ascertain the value of the different plants from which come our surplus. I deem it very essential that we should know this, as I find there is a great variation in the amount of nectar secreted by honey-plants in different localities. For instance: Clover may yield abundantly near the home apiary, when three miles away, but little honey will be gathered from that source, although the bees in the out-apiary may appear to be working lively; when, by consulting the scales, we discover that but very little is being stored there, when if we had no scales to indicate to us the scarcity of honey in that vicinity, we should be at a loss to know why the sections are not being filled as fast at this out-apiary as at home. It is but very little trouble to prepare a scale hive. Simply set the scales level both ways and place the hive on them, and prevent swarming if possible; and every morning, early, balance the scales and record the gain, or loss, for the past twenty-four hours. I use common cheap platform scales, that cost but \$3.50 each. It will be seen that there are many advantages to be derived by the use of scales in the apiary. I would not think of running an apiary without having a colony on scales; and if I had twenty apiaries, I would have twenty sets of scales, one set for each apiary. I give the records of two seasons, to show the difference in the length of time bees have to gather a surplus here in Vermont.

RECORD FOR 1875.

Date.	Lbs.	
June 17...	5½	
18...	4	
19...	5	
20...	6	
21...	5½	
22...	5	
23...	13	
24...	3	
25...	9	
26...	9	
27...	12	
28...	8	
29...	9	
30...	12	
July 1...	8	
2...	9	
3...	4½	
4...	3	
5...	3	
6...	12	
7...	19½	
8...	20	
9...	20	
10...	20½	
11...	17	
12...	17	
13...	15	
14...	11	
15...	9	
16...	5	
17...	4	
18...	2	
19...	0	

Season closed.

It will be seen that in 1875 there were 31 days in which there was a surplus, while in 1885 there were but 18 days in which there was any gain, though in 1885 my surplus was all gathered in 12 days, the rest being stored in the brood-combs. A. E. MANUM.
Bristol, Vt.

There is one thing that surprises me in the above report, and I am still more surprised that neither yourself nor the editor of the *Bee Hive* seems to think it any thing remarkable. In 1875 your best yield in a single day was 20½ lbs. This is remarkable; but when we read that, ten years later, one colony made 33½ lbs., in a single day, we begin to think your bees must have gained skill and wisdom, as well as yourself, during the ten years past. May be I have forgotten, but I do not remember any such report of one hive in one day since the time of friend Hosmer. You must have a wonderful basswood pasturage in your vicinity. I

think I might almost promise to make a trip to Vermont to sit down beside a hive of bees and see them "lug in" even 30 lbs. of honey between daylight and dark. Please tell us, will you not? something about your wonderful basswood pasturage. I once had a colony that made me a clean 10 lbs. on clover during one day, and that day was Sunday too, so I could watch them a great part of the time—at least I did in those days, years ago. In 1885, however, the best that clover could do was 3 lbs. We hope clover has improved with you since then. If using white poplar for sections in your vicinity has been the means of sparing the basswood, you have still another reason to thank God for white poplar. Your figures above teach us another lesson: If basswood is to be cut down, and no more be planted, at the rate it is now going it will be almost the ruin of bee culture. How much profit would you have had during the two years given above, without basswood? Is anybody planting basswood orchards but myself? Ours is big enough now so that Ernest is talking of locating an apiary right near the basswood orchard. He has bought a pony already, to ride back and forth—so much toward the enterprise.

DOUBLING IN TEN DAYS.

THE MERRY HUM OF SWARMING AND OF INCOMING
LADEN BEES; THE BOY BEE-KEEPER, AGAIN.

WE had almost drifted out of the brotherhood since leaving the merry hum of a hundred colonies of golden Italians at the old homestead in romantic Georgia; but this season finds us again in the ring. In addition to our individual interests, a near neighbor with four colonies of good Italians insisted on turning the same, as they stood, into our hands. These bees were in single-story Langstroth hives, and stood on their winter stands, without having been so much as examined this spring, when we took charge, and one had swarmed and fled to the woods. Ten days thereafter we had increased, without the use of foundation, to eight colonies; and to-night, at the end of the thirteenth day, we have here nine full colonies and two two-frame nuclei with queens. We have taken about 25 pounds of comb honey, and some of the hives are literally packed with honey to overflowing, as was one of the original colonies when the tender comb fell down and two-thirds of the bees were drowned in the honey. In consequence of this disaster this colony has played little part in our increase. To begin with, we made an artificial swarm from one colony, giving three frames of brood and six empty frames on the old stand; in ten days they sent out a good swarm from a full hive, and retained a lively young queen. Of course, these bees had plenty of brood and workers to commence with; but they have "got there, Eli," at a lively rate, and it takes our best to keep them in the hives, as they have the swarming mania worse than any thing. The "Boy Bee-keeper" is again with the A B C class; but when it comes to a spring run and a big honey-flow, just pass us the cake. We think some of Bro. Root's colonies could score 100 pounds in any ten days this spring, if he'd just send 'em down here. CHARLIE R. MITCHEL.

Ocala, Fla., Mar. 30, 1889.

RAMBLE NO. 16.

THE RAMBLER TELLS SOME CURIOUS THINGS; USING A VIOLIN TO BRING DOWN SWARMS.

THE inauguration of a new president, and the retirement of President Cleveland, reminds the Rambler of a very pleasant visit with Mr. David Cleveland, of Pawlet, Vt., a distant relative of the ex-president. A large transferring job was to be done; the Rambler's aid was solicited, and in a day of lively work nearly 30 swarms were changed from old box hives to the regular Langstroth, and Bro. Cleveland was made happy. Mr. C.'s apiary is located among the splendid hills where a never-failing supply of honey is sure to be secreted. We found him to be a man on the shady side of 60, and a mason by trade. The usual hardships of life had given him a stooping form and a more aged appearance than he rightly should assume. We found that one of his crosses was a bed-ridden daughter, who seemed to be a counterpart of Anna Quillin. Miss Cleveland had not been from her bed for several years. Physicians said her disease was incurable; but the advocates of the Faith cure gave him hope again, and, behold, in due time she arose and walked the earth again. All hoped that she would become permanently strong; but, like the most of such cures (?) that have come to the Rambler's notice, it was not permanent; and after a few weeks of freedom she was again doomed to the narrow limits of a bed.

We here first learned of the existence of a "shut-in society," or a society of invalids who keep up a system of correspondence and exchanges. We were surprised to find specimens of rare plants from the tropics, and many things curious and instructive from remote parts of the country. We rejoiced with the invalid for that splendid institution, *Uncle Sam's mail-bags*.

Mr. C. gave us interesting facts in relation to other bee-keepers in his vicinity; and thinking a holiday among them would recreate him as well as interest the Rambler, later in the season we called upon Mr. C. It was at the twilight hour, and we found him mounting guard. A portion of his grounds are set out to grapevines. The boys from



NIGHT VIGIL AT THE GRAPEVINES.

a neighboring village are so immoral as to steal our friend's grapes. To protect them while ripening, for several nights he guards them with shot-gun in hand. His intentions, however, were not blood-thirsty, as he meant only to scare the intruder.

The next day we called upon several bee-keepers,

and among the most extensive was Mr. Cross Lincoln, of Rupert, Vt. The first thing we noticed about Mr. L. was his very pleasant appearance, giving a direct contradiction to those who have given him the name Cross. It beats all what misnomers people will tack on to a fellow sometimes. At the time of our visit, Mr. L. had nearly 200 colonies, and his honey-house was filled with as nice an exhibit of comb honey as the eye of a bee-keeper could look upon. Here for the first and only time in our life we saw 3000 lbs. of comb honey in half-pound sections, all crated and ready to ship to the Boston market. Mr. L. claimed that just as much honey could be obtained in these small sections as in larger ones, and that 2 cents per lb. more could be obtained for honey in this shape. They looked so fascinating that the Rambler wanted to get right home and prepare to run all of his colonies for half-pounds; but in correspondence with Mr. L. since, our ardor is dampened somewhat by his saying that he will return to the use of one-pound sections. Mr. L. combines potato-buying with bee-keeping. The potato-trade coming in the fall and spring, it does not interfere with the bee-business. His bees are wintered in a small cellar. The space is packed as full as it will hold, and the temperature must necessarily be very high. The only ventilation is a tube through the cellar window.

It seems to run in the Lincoln family to keep bees. An older brother, we believe Mr. Homer L., has the honor to belong to the fraternity, and his combination of other business is quite novel. Besides bees he gives his attention to fox-hunting and fiddling. During the winter months his violin is heard upon many a festive occasion, far and near. During the swarming season, when the bees are upon his mind, his violin, we are credibly informed, is used to a great extent. It is said, that with a violin you can strike a key-note that will vibrate down an iron bridge. It is also said that the walls of Jericho fell from this striking of a key-note between the rams' horns and the wall. So in this case, Mr. L. with his violin strikes the key-note of the swarm, and every bee drops to the ground. It is better, however, not to bring them all down at once. Some slow tune like "Old Dan Tucker," where the key-note is often struck, will cause them to alight in short order; and Mr. L. loses no swarms by absconding, so he says. The Rambler never saw Mr. L. do this wonderful feat; but if any violinist has doubts about it, let him try it next swarming time.



STRIKING THE KEY-NOTE OF A SWARM.

After a very pleasant day, which Mr. Cleveland also seemed to greatly enjoy, the Rambler set his face toward the spot where the sun went down; and after a few hours' drive he arrived at the Residence of Stephen Carpenter, the Quaker giant bee-keeper of Granville.

THE RAMBLER.

Friend R., please have plenty of charity for the advocates of the Faith cure. The inspiration and excitement attendant upon almost any thing which is novel, especially if it arouses the interest and enthusiasm of

the patient, is pretty sure to have a beneficial effect. If this interest and enthusiasm is also in a line with something good and praiseworthy, I think the chances are much better for success, and we should by no manner of means ignore the fact that a loving faith in the strong arm of the Almighty can never be a mistake. Mrs. Axtell's wonderful recovery was the result of faith in God, her love for the honey-bees, and a new ambition and enthusiasm that helped her as nothing else could, perhaps, to get out into the sunshine and open air. If Miss Cleveland has not had an account of this through GLEANINGS, we want you, friend R., to see that she does get it.—I have often heard that a violin would shake an iron bridge, but I never had an auricular demonstration of the phenomenon until I heard that roar in the Moniteau grand cavern I told you about.

THE ITCH AND FACE MITES.

PROF. COOK TELLS US SOME IMPORTANT FACTS ABOUT SOME "INTIMATE ACQUAINTANCES."

I AM requested by a subscriber to GLEANINGS to illustrate and describe these hateful pests. As these detestable miners practice no nice discrimination that causes them to leave bee-keepers out of question in their quest for forage, every bee-keeper is interested in their structure, natural history, and mode of life.

Mites belong to the spider—sub-class *Arachnoidea*—and so have eight legs, simple eyes, well-developed mouth-organs, but no antennæ. They belong to the mite and tick order, *Acarina*, and so are a mere sack with legs and mouth-organs appended (see figures). That is, unlike true spiders and scorpions, they have really only one part to the body—no distinct head or head-thorax. Mites are also peculiar in having six legs at first and eight when mature. All others of this sub-class have eight legs from first to last.

This mite order is a very extensive one, and the species included are very variable in their habits. Thus we have the cheese-mite and the sugar and flour mite, named from the substances which they infest. These mites are mere specks, though when very numerous they make these important food articles quite lively. As they are small—so small that they are usually overlooked, yet often the sharp-eyed housewife discovers them, and is very much disgusted; for howsoever pleased she may be to see her flour "rise," she is not pleased to see it walking off.

House-mites are black and red species—mere specks—which often gather on windows and under carpets in such prodigious numbers as to be incalculable. These are often seen, and I have received inquiries regarding them many times, and from many States. They are harmless, except for the discomfort arising from the presence of such vital specks in our homes. Many mites prey upon insects, which they destroy. Thus we are freed by mites from some of our worst insect-enemies. Other mites prey upon poultry, and do great mischief. Free use of an ointment made of kerosene and lard soon frees the poultry-house of these annoying pests.

The red spider is another kind of mite which

works in greenhouses, and, when the atmosphere is dry, on outdoor plants. Plenty of water sprayed upon affected plants quickly puts these vegetable-destroying mites to rout.

The phytoptus mites are a very minute, long, slim, four-legged species that also attack leaves of trees like maples, basswood, etc. These form teat-like galls on the top of the leaves, and were described and illustrated by me in GLEANINGS two or three years ago. So far as I have observed, they do no very serious harm. A silver-leaf maple in our old apiary was covered with these phytoptus galls for years, yet the tree continued vigorous and healthy, and made exceptionally rapid growth each year. Wood and cattle ticks are gigantic mites that often do serious harm, as horses are sometimes killed by their attacks. I will illustrate and describe these jumbo mites at some future time.

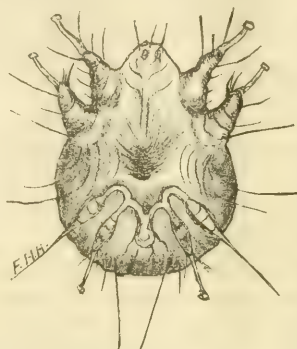


FIG. 1. ITCH-MITE GREATLY MAGNIFIED; VENTRAL VIEW.

The itch-mite (*Sarcoptes scabiei*) as seen in Fig. 1 is very small, really microscopic, and has a disgusting habit of burrowing under the skin in the angles at the bases of the fingers, where it causes disgusting pustules. The irritation causes an itching sensation

which gives rise to the name

"itch," applied to the disease caused by these microscopic mites. The old name, seven-year itch, shows how hard it was in old times to exterminate this enemy. Nor do I need to say *old* times, for within a short time a young man came into my laboratory with very suspicious-looking hands. He was a nice, neat young man too. I said, "What ails your hands?" He replied, "I wish you could tell me. I have had this trouble for four years"—more than one-half of seven—"and have consulted two or three physicians. Not one can tell the trouble or help me." I took a scalpel, picked away a moment at one of the pustules, placed my "find" under the microscope, and showed him a plump itch-mite. He was ready to dance with joy when I told him that a little mercurial ointment, or an ointment made of lard and kerosene, would at once rid him of this plague. Isn't it a sorry compliment to our physicians that they can not rightly diagnose and cure this itch-plague? Or, rather, is it a compliment, perhaps, to our civilization, that itch is so scarce that our "M. D.'s" have no chance to study the malady, and little occasion to examine and treat it?

The face, or pimple mite, *Demodex folliculorum* (Fig. 2) is a long slim mite that bores into the skin, causing pimples. This mite is

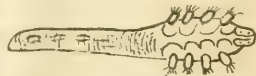


FIG. 2. PIMPLE OR FACE MITE GREATLY MAGNIFIED; UNDER SIDE.

even smaller than the itch mite, $\frac{1}{30}$ of an inch long, and burrows in the hair-glands. It finds a favorite lurking-place and feeding-ground along the nose, It has been said, that one person in every ten has

bors these pimple mites. They are hard to exterminate, but, fortunately, they do little harm except to mar the fair face of beauty. Possibly in humbling pride they may be a disguised blessing, proving Shakespeare's paradox: "Sweet are the uses of adversity."

These two mites, if we except the old wood-ticks, are all that attack man. In another article I will describe the Texas cattle or pony tick, and then speak more fully of the old wood-tick which formerly, before the forests were cleared away, were far more numerous than now. A. J. COOK.

Agricultural College, Mich.

Well, I declare, friend Cook, entomology did do good service for once, didn't it? I wish I could have seen your face when you demonstrated by science the problem the doctors could not grapple. Now, I tell you I believe in that sort of medical education. When we learn to chase out disease as we would chase out rats and mice, we are at work with a solid rock under our feet. I am a little surprised to know that live animals really burrow in the skin of the face. I have heard this contradicted so ably that I had decided it was only a piece of superstition. I trust they are not very common. How about pyrethrum for these minute animals? If one had the itch, would not pyrethrum, rubbed thoroughly into the skin, have the effect it does on all other kinds of insects? I have heard my father tell about wood-ticks when he used to work in the clearing around our log house in the wilderness, and therefore I am much interested.

SUPERSEDING DRONES, AND DRONE COMB.

DR. C. C. MILLER TELLS US SOMETHING OF SOME SENSIBLE METHODS OF DOING IT.

IF there is no interference on the part of the beekeeper, an unprofitable number of drones will be raised. It is supposed by some, that, for the best success, each colony should be allowed to raise some drones. I never saw any reason given for this, and I suspect there is no kind of need for any drones, except as many as a single colony will raise, even in a good-sized apiary. Perhaps if the matter could be fully controlled, the best way would be to have not a single drone raised, except in one colony, and that the best in the apiary, and to raise no queens from that colony. But with all the pains that may be taken, there are likely to be drones raised in nearly every colony. Even if you fill a hive with worker foundation, the bees will build some drone-cells. Not many, however, but from year to year the amount of drone comb is likely to increase on account of the bees filling up with drone comb any hole made by mice or in any other way. It will pay to look this matter up annually, and make the effort to prevent drone comb in all but the one colony.

A good time for this is in the spring, when the combs contain the least honey. If you find holes in the combs you may be pretty sure that, if left to their own sweet will, the bees will fill it with drone comb. To prevent this, fill it yourself with worker comb or worker foundation. Take one of the combs that has in it a good deal of drone comb, and cut it out of the frame to patch other combs with. Then cut the drone comb out of another frame; lay this

frame over the comb to be used for patching; mark with your knife the shape of the hole on the under comb, then cut out the piece and crowd it in the hole and the bees will do the rest. If the frames are wired it may be better to use foundation. Cut away the cells around one side of the hole, so that the septum shall be bared about the margin for perhaps a fourth of an inch, and press on this a patch of foundation, preferably somewhat warm. Let me remind you, that, if left alone, the combs will gradually have a larger and larger percentage of drone comb, and that it is not likely any hole will ever be filled by the bees with worker comb, and that every square inch of drone brood not only takes the place of a larger amount of honey, but that these drones, when hatched out, make heavy drafts on the stores brought in by the workers. I think Cheshire has estimated that each drone raised means the loss of about three times its weight of honey; but I may be wrong about this.

While you are at it, let me call your attention to another thing to notice, as you look over the combs. I do not remember to have ever seen it mentioned, and it is quite possible some of the veterans may be glad to have their attention called to it. When extracting our honey, if the emptied comb is examined there will very often be found cells a quarter, an eighth, or even a sixteenth of an inch deep—possibly a patch of several square inches of such cells. They have been made in this way: In moving the combs they have been so placed that two sealed surfaces have been placed together, but so far apart that, when the bees have been increasing their store room, they have built cells on top of the capping; and when the comb was taken from the extractor, the honey still remained under the lower surface of the capping. So far you have noticed this. Now, did you ever notice that the bees never uncap this lower capping? Even if rudimentary cells have been begun on top of the capping, in which not a drop of honey has ever been put, nor could be put—so shallow, indeed, that ordinarily it would hardly be noticed—all the honey that is under the capping in such a place might just as well be so much lead so far as the bees are concerned. I put a comb containing such honey, last fall, out in the open air, at a time when the bees were inclined to rob. Not a drop of honey was taken from it. If, in the course of time, as much as a quarter of a pound of honey should thus accumulate in each comb, it would be a matter of some moment. So whenever you see these shallow cells, punch a hole in the bottom, which was originally the capping, and the bees will tear out this false bottom. If the surface of such cells is considerable, cut away and uncap it. C. C. MILLER.

Marengo, Ill.

Friend M., I have done exactly all you mention, and have observed all you speak of, and I believe that my conclusions were just about the same as yours. I never saw very much honey left in the comb, however, because of this intermediate capping, and the robbers in our vicinity would certainly have found it in time. I have known them to chew up a comb and pack it on their legs and carry that off too. The chaps that carried off the comb, however, might not have been positive robbers. I have seen colonies get along apparently well, even after I had removed every cell of drone comb; and it

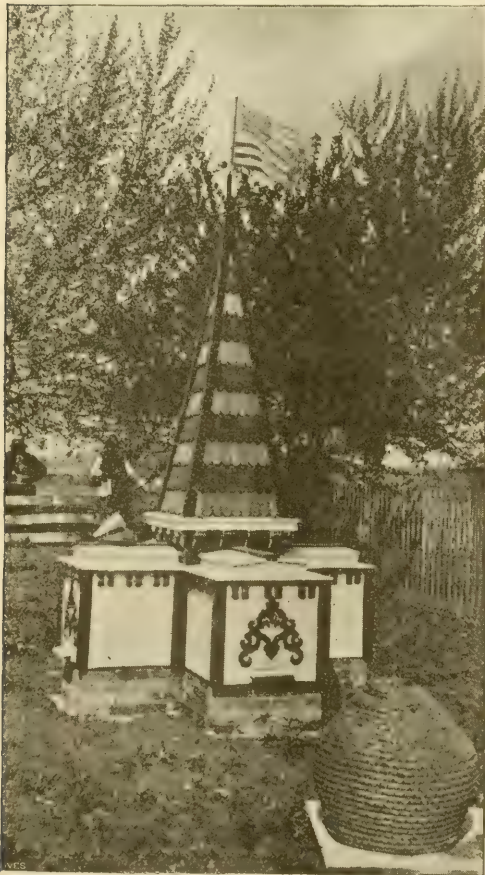
certainly makes a very great difference in the yield of honey, this getting rid of drones entirely, when none are wanted.

ORNAMENTAL HIVES.

LEVI STOVER'S TENEMENT HIVE, AND HOW IT LOOKS AFTER COMPLETION.

SINCE the publication of the sketch of the tenement hive, March 1, 1887, I was frequently reminded that other bee-keepers were interested in ornamental hives, as I received letters from different parts of the country, asking for further description. For the benefit of other bee-keepers who have time or taste for the ornamental part of bee-keeping, I send you a photograph of the hive. There are four colonies of bees in it, doing well, but not any better than in single hives. The spire is fastened with hinges, and is used to store chaff cushions in the summer. For a contrast, the straw skep was placed in the foreground while taking the picture. It was made by my father, 64 years ago, when 19 years old. He is still living, and also keeping bees. He has had from two to twenty colonies since his boyhood, but his bees are still governed by a "king."

Brookville, O., April 25, 1889. LEVI STOVER.



SIXTY YEARS AGO AND NOW, SIDE BY SIDE.

CELLAR WINTERING.

FRIEND DOOLITTLE THINKS DAMPNES AND CLAY SOILS NOT NECESSARILY DELETERIOUS.

IF this article is a little out of season, I hope the readers of GLEANINGS will excuse, for I feared that, if I did not give it now while it is fresh in my mind, it would never see light at all. I see, on page 296, that Prof. Cook thinks that a bee-cellar in sandy soil is better to winter bees in than one in clay soil, and that you, Mr. Editor, agree in the same thought. Well, this may be so; but I wish to say that no one need be debarred from wintering his bees perfectly in a cellar, even if the soil is the worst kind of a clay. The soil where my bee-cellar is situated is of a mixture of clay and what we call "hard-pan," the same holding water even more tenaciously than all clay, if possible, yet my bees have all come out in the very best condition possible. There has been so much moisture in the cellar the past winter that it has stood in drops all over the roof on the inside nearly all the time; while on the door, which is painted, it has run down so as to stand in puddles at the bottom. Besides this, mold has formed about the sides, so that some handsome specimens have reached the length of two inches in the center, while the base of some of the largest patches is six or more inches in diameter. Now, I feel almost like asserting that dryness or dampness, ventilation or no ventilation (except that which will pass through the surrounding surface), has nothing to do with the bees wintering well, but that the whole thing rests on the right temperature. I can not see how the professor's cellar should be so cold unless he has a room above it.

Nov. 5th I commenced to place my bees in the cellar, putting in a few each day till the 11th, when all were in. A week after this, the temperature in the cellar stood at 45°. It very gradually lowered, till, on the middle of January, it stood at 42½°. Here it stood till about the middle of March, when it gradually rose, so that, on the 10th of April, it stood at 45° again. On the 15th of April I commenced to put the bees out, putting a few out each day when the weather outside was right, till the 24th, when all but eight were out. It now came on rainy and cool, so that, as I write, the eight are still in the cellar. Although we have had the mercury as high as 82° in the shade during this month, and I have had the doors open to a certain extent while carrying the bees out, still the thermometer has not been above 45° in the cellar after the same had been closed an hour after setting bees out. I have just been to the cellar, and find all just as I have described above, with the bees in the eight hives still remaining as quiet as they were last December, and occupying from five to eight ranges between the combs. In one colony, nearly a pint of bees hang below the combs; and after watching them quite a while I failed to see one of them stir a single bit till I breathed on them, when they readily told me that they were all alive. As these colonies that are still in the cellar are those that were set in first, it will be seen that, when five more days pass by, it will be just six months since they saw the light of day; and yet if damp and moisture are detrimental to bees wintering, and if they can not winter without special ventilation, they should have been dead long ago. An examination of those set out of the cellar shows that

they have not consumed half of their stores, and also that scarcely a bit of brood has been reared, although all colonies have a few eggs when first brought out. One or two had some hatching brood, but so far I have found no larva in a single hive. Some of the colonies first set out now have brood in all stages possible for the length of time they have been out, being fully up to the best colonies wintered outdoors along this line; and I suspect that those that are in the cellar would have been better off had they been set out when the first were, yet I can tell better about this when the basswood comes to blossom.

While Prof. Cook reports that he has had to keep an oil-stove in his cellar to keep it warm enough, I see many reports where the unusually mild winter has caused bees in cellars to become uneasy and winter poorly, besides making the owner a "thousand sight" of work opening windows and doors nights to keep the temperature down. The professor speaks of my loss when using an oil-stove as if he does not know how to account for it. Well, the difference was, that, while he maintained the temperature in his cellar at 40° as near as might be, I kept mine that season at 50° and above. Some have claimed that the oil-stove caused the trouble with me, but I have always claimed that it was the high temperature.

I now wish to say a word or two in regard to hibernation. As all will see by what I have written above, my bees that were in the cellar "hibernated" the past winter, if bees ever do such a thing, and that they are at it yet as much as they have been at any time, in the case of the eight colonies now in the cellar.

Well, some of the hives placed in the cellar were chaff hives, and in one or two of these hives those large black ants, which have been seen by nearly all in old partially decayed trees had made a home during the past season. One of the hives infested with these ants chanced to go into the cellar, from which I had taken the sawdust cushion, and I looked at the bees at least half a dozen times during the winter, I not knowing that there were any ants in the hive, or, rather, in the chaff packing. On the 18th of April I noticed that these ants were out around the hives that were outdoors, which were the first I had seen for the season. On the evening of the 20th I went into the cellar to fix for carrying more bees out the next day, and I heard a continual "zeep, zeep," from the bees in a certain part of the cellar, which was something I had never heard before in that place. By listening I soon found the hive it came from, and upon raising the sawdust cushion I saw twenty or more of those large ants, with their heads under the quilt over the bees, trying to catch hold of the bees which were uttering these notes, and trying to drive the ants away. Now, the question is, as the temperature of the cellar had not changed in the least for several days previous, and but very little during the whole winter, how did these ants know when to wake up at the same time those did which were outdoors, and why were the bees in all of the other hives as quiet as they ever were, being so still in the eight hives which remain? All know that I do not believe that bees hibernate, while I know that this species of ants do; yet it would seem that the temperature has little to do with the hibernation of these insects, while it has all to do with the quietude of the bees. Who can tell us more about this

strange suspension of life, and the power of taking it up again at will? G. M. DOOLITTLE.

Borodino, N. Y., Apr. 30, 1889.

In regard to the ants, friend D., I have seen them frequently in their dormant state; but they always came out of it when the temperature was raised sufficiently. I do not know whether disturbing ever roused them up without lowering the temperature or not. Perhaps Prof. Cook can tell us. Now, bees at a certain temperature, where they have rest and quiet, assume a state apparently much like that of the ants; but they are roused by a jar, or even by breathing on them, as you mention, and that, too, without any change in the temperature. Another thing, the ants, while in their dormant state, consume no food at all—at least I suppose they do not, and I presume they may remain in that dormant state for six months—may be longer. So far as I know, bees consume food—at least it is my impression they go to the stores and fill up once in, say, three or four days. To tell the truth, however, I do not *know* very much about it positively. Who does? When a bee is once filled with honey, how long can it live if the temperature remains favorable?

MRS. HARRISON'S LETTER.

BEE CULTURE IN DENMARK.

FOR a fortnight past I have been visiting some nephews and nieces, lately bereft, in the village of Granville, Ill. While there I visited Peter Dahl, a Danish bee-keeper, born on the island of Bornholm, in the Baltic Sea. This island is about thirty miles long, and from sixteen to eighteen miles wide. It furnished us a number of hardy soldiers during the rebellion, among them the subject of this sketch. In answer to my inquiries, with reference to bee-keeping on his native heath, he said there were no bees kept in towns and villages when he lived there, but all the farmers had some, with very few exceptions—hardly any but that had bees. The house, stable, and out-buildings were all built around a square, and this yard was paved with stones. These farm-buildings were so constructed, being built of stone and long rye straw, pounded down and covered with pitch, as to last for hundreds of years. On each side of the door that opened into this paved yard were two benches for bee-hives, right under the windows. There was a stone fence built around these benches. When the bees swarmed they were put into a straw skep and placed upon the bench. Then they were plastered around the bottom with mortar made of clay, leaving only a very small entrance for the bees. This was done to keep out a beetle with two pincers, and had a tail. Mr. Dahl has never seen any in this country, and does not know what harm these creatures did to the bees or honey; but the plastering was done to keep them out. In the fall the hives were all lifted, and the very heavy and light ones taken up, while the medium ones were preserved for another year; never more than four were kept over. There was no arrangement for securing surplus, and no comb honey was used. The honey was pressed out; and if any was sold it was by quart measure.

Bees gathered honey from the bloom of apples

and pears, which did well there; from white and red clover, flax, mustard, and heather. There was a sandy tract in the center of the island, which belonged to the king, and here is where the heather grew, and every family was allowed one load of it to kindle fires.

Mr. Dahl showed me a bee-book in the Danish language, but all I could interpret was occasionally the name of Dzierzon. He says he knows one person on the island who now uses frame hives.

Peoria, Ill.

MRS. L. HARRISON.

MRS. HILTON'S LETTER.

CALIFORNIA, AND SOME THINGS IN GLEANINGS.

I FELT sure that you would not feel satisfied with the short visit that you made to our beautiful land, so I was not surprised to read that you were coming again. You would have enjoyed a visit with Uncle James Gilchrist, at Montecito. I know I did when we were at his place, and may be we then can have the pleasure of seeing you and your wife. I did not expect you on this last trip, for I felt that you would have to be more than mortal to see half you ought to in the short time you allowed yourself. Don't leave Huber behind when you come. When Mr. H. read that piece where you quote "Beulah Land," I had to smile, for that is what I sing when upon a mountain. It is so appropriate, I find myself singing it before I think. I do not see how that man killed those tarantulas with chloroform, for I tried my best one time to dispose of one so as to have a fine dead specimen. I put a tumbler over it, wet a large piece of cloth with good chloroform, and shoved it under the tumbler with a knife, and left it all night. The next morning Mr. T. was as lively as ever. Then I wet the cloth three or four times during the day, but it would not give up, so I had to kill it another way.

Did you ever have your credit too good? Ours is, or was this spring, any way. We wrote to a dealer in San Francisco to know if there were any sweet potatoes in market, and at what price, as we wanted 100 lbs. for seed. In a week our station agent informed us that there was a sack of sweets at the depot, waiting for us. Now, we had been sold once before on sweet potatoes by having them shipped in a sack, after paying a fancy price for them, and we did not have any hot-bed ready for them; so imagine our feelings. Of course, they were badly bruised and rotting; so if we get 100 plants under the circumstances, we shall think we are lucky. The dealer thought he was doing us a favor to send them immediately, and we shall not let him know any thing to the contrary. But what I want to make out after this long preamble is, don't ship sweet potatoes in any thing that they will get bruised in, or customers will pay dear for their seed. We enjoy the agricultural department of GLEANINGS very much, also Rambler's letters, and—but, what is the use of specifying, for we read the whole thing from beginning to end, and think each one better than the other? Of course, you know by the large list of subscribers that you furnish a good article; but may be you are like our minister. I thanked him for the excellent sermon he gave us last Sunday. He looked at me in surprise a moment, and then said, after drawing a long breath, "Did you like it? Well, I am like one of our bishops. He said he had to have a word of praise once

in a while, to keep going." I had to laugh a little, as it is hardly decorous to clap our hands in the Lord's house when the minister gives a good thought. I have always felt that we should give a word of praise after the sermon. But I, as well as others, am something like the little girl that was chided by her mamma for not saying "thank you" for something she had received. She said, "I did say thank you." "Why, no, my child; I did not hear you." "Well, I said it, any way, down in my heart." MRS. J. HILTON.

Los Alamos, Cal., April 11, 1889.

Yes, Mrs. H., we have had considerable of such experience as you mention, with the sweet potatoes. Where a dealer is overstocked, and very anxious to get rid of his stuff, he sometimes ships it to parties who simply make inquiries. He should, however, always state that the goods are sent on approval, and if, in so doing, any thing is not perfectly satisfactory, he will make it so. I think you should have told him just the state of affairs, and let him bear at least a part of the loss. We have sometimes sent goods in that way, when customers mentioned that they were greatly in need of them; but where goods are sent without a positive order it very often makes trouble. —I think your minister is exactly right in the point he makes. It is words of encouragement that stimulate us to try still harder in speaking or writing; and without that, I doubt if anybody could do his best. When the work is in the line of bringing souls to Christ, kind words act like inspiration. I am glad you like "Beulah Land."

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HUMBUGS AND SWINDLES.

THE Golden bee-hive man took in this county last winter, and sold the right to two gentlemen for \$100, who, hearing I was interested in bees, came to see me. It was a terrible old box. I told them I should like to have some to set hens in. They had a lot of circulars and testimonials, among others one from Prof. A. J. Cook, saying he had taken, if I remember right, 200 lbs. of honey from a Golden hive, which I told him I did not believe. Of course, I did not blame these gentlemen. They were persuaded to buy the right, and knew nothing of bee culture or beehives. I think they told me they had never seen a bee-journal. I gave them the names of several. The man who duped them was a Tennessean. I have forgotten his name. A. R. KILLINGSWORTH.

Red Lick, Miss., April 16, 1889.

Friend K., if you will look in GLEANINGS for Sept. 15, 1888, p. 693, you will find that we published an extract from the circular you mention; and at a later date, see page 767, Oct. 1, 1888, you will notice Prof. Cook's statement that he never used the Golden hive, and never wrote any such statement. It is a point-blank forgery, and the men who go around distributing such circulars should be arrested. I hope you will show them the numbers of GLEANINGS that I have referred to, as well as this one.

We will send them wherever you direct, free of charge.

C. C. MILLER DISCOURSES FURTHER ON THAT HIVE-STAND; A CORRECTION.

I'm sorry the picture in May 1st GLEANINGS shows the bottom-boards of my stands projecting. I'm not good at making pictures, and didn't know how else to show where the boards were. But there is no need of my stands projecting beyond the hive, and, as a matter of fact, they do not. Sand or sawdust closes up every thing about your stands, and that feature I like. I know no reason why it could not be applied just as well to mine, and then I don't know of any advantage yours has, while mine has the advantage that the stands can be more cheaply made, leveled in less than half the time (because double), and will stay level better; and if a board rots it can be replaced separately without renewing the whole stand. As a matter of magnanimity on my part, however, I'll let you continue to use yours.

Marengo, Ill.

C. C. MILLER.

JAPANESE BUCKWHEAT.

Bees have wintered well in this section. There will be a good deal of Japanese buckwheat raised here this year, as the test last season was so favorable. I think its introduction worth an immense sum of money to the country, if it does as well in the future as it promises so far. I raised 21 bushels from the peck I got of you last year, on poor ground, and one of my neighbors raised 31 bushels from the same amount bought of you.

VOLNEY WHITE.

Findley's Lake, N. Y., April 29, 1889.

HOW BEES GATHER POLLEN.

Under the head of "Pollen," in your A B C book, you say the bee "sweeps his tongue among the grains of pollen." I have peeped around them, and spied about them and under them till my neck was tired, but I have never seen him "sweep his tongue" yet. Last spring I mixed meal and flour, and put it into a shallow box, as a substitute for pollen. One day in passing by I observed a bee in the bottom of the box, digging away with his fore legs among the meal that had gathered in the top. Holding my breath that I might peep closer, I discovered that, with his front legs, he flirled the fine meal or flour among those bristles, hairs, or feathers, on his chest. When he has sufficient, he rises on the wing and then "sweeps his tongue among the grains of pollen," places it on his hind legs, and is ready to get another batch. When gathering from flowers he does the same way. The bumble-bee gathers the same way, except that he sings while flirting the pollen among his feathers.

Smithville, Mo., April 18, 1889.

J. M. AKER.

I confess, my friend, that I never could get a bee to work slowly enough so that I could be satisfied just exactly as to how he did it. Where they work on meal, however, I am quite certain that the tongue furnishes diluted honey, or something equivalent, to enable the bee to pack meal like dough, and thus form pollen masses. Its tongue is certainly a very important tool; but I am not even now satisfied what office it performs.

HIVES WITH MOVABLE COMBS OR NOT.

Friend Root:—In commenting on Question 117 you say, "A few have been bold enough to say there is no particular need that we should have frames at all—just have a shallow brood-chamber, and let the

combs be built in solid." Now, that is just the hive I am using, not from choice, but from necessity. There are some difficulties which, if I can not overcome, will compel me to buy a saw and make frame hives.

How can I prevent swarming, especially after-swarms? I wish friend Hetherington would give us a few dots on that line. How about finding out the condition of the hive as to stores, brood, queen-cells, etc.? It seems that they are much more liable to leave the hive after they are hived than if they had a frame of brood or even frames with starters. I think it would be a good idea to make the inside of the chaff hive of the thick paper used sometimes for ceiling houses, but without the varnish which is put on it. That would give porosity, ventilation, lightness, and warmth.

Cuthbert, Ga., Apr. 6, 1889.

L. A. DUGGAN.

Friend D., you can not very well prevent swarming absolutely, even with movable-comb hives; but if your boxes are shallow enough you can, by holding them up to the light, see the queen-cells, and cut them out with a long slim-bladed knife from either one side or the other. You can also, in the same way, judge of the stores. If they need feeding, instead of giving them an extra comb give them an extra section of combs. You might, with some trouble, give them unsealed brood, to keep them from absconding. Very likely, thick paper or straw-board would answer nicely for the inside of chaff hives.

THAT ORANGE-BLOSSOM HONEY.

Your kind notice of our orange-blossom honey is very greatly appreciated. We have sold about 20 gallons of it, and have left about that amount on hand. We receive for it here, in five-gallon cans, 10 cents per lb. We got about 40 gallons, same as sample, and have taken since (on Saturday, April 20) 15 gallons, a shade darker, mostly from a laurel bush. The next extracting will be from that also; then palmetto and basswood come together so close I fear we shall be unable to separate them as distinctly as I should desire. I will send you a sample whenever I get any that will be worthy of it.

Altونا, Fla., Apr. 22, 1889. JOHN CRAYCRAFT.

BEE-STINGS A CURE FOR RHEUMATISM.

Last summer I began bee-keeping, and up till then I had been troubled with rheumatic pains; but during the time I was stung by bees I never felt any pain from rheumatism. The poison from the stings seemed to cure the complaint. Do you think there is any thing in it?

F. BROWN.

Uttoxeter, England, Mar. 20, 1889.

It has been pretty well demonstrated that rheumatic pains do give way, at least to some extent, when the sufferer is stung frequently by the bees. It just now occurs to me, however, that taking a good sweat every day in the open air, out in the sunshine, might of itself have a beneficial effect on the rheumatism. We have plenty of instances where people have been greatly improved in health by taking up bee-keeping or gardening, or any other like outdoor pursuit; but I do not now remember that we have had positive proof that the patient would have been relieved by sitting in his room and having the bees brought to him so as to give him a sting, say half a

dozen times a day. Perhaps it would be well to commence with one sting a day, and then give him more as he could bear it. I should be very glad indeed to know that the latter plan has succeeded, but I am quite anxious that sunshine and outdoor exercise have their full due. When the days are so warm that I get real sweaty out in the fields, my aches and pains and nervousness almost invariably give way more or less, so I believe in living outdoors a good deal.

YELLOW JESSAMINE: A CASE OF HONEY-POISONING, AGAIN.

Inclosed you will find a clipping from our county paper, that may be of some interest to you. I am not acquainted with any of the parties, but I have no doubt of the correctness of the statement. Whether the death was caused by the poison of honey may be questioned. J. C. GRAYSON.

Wylce, Ark., April 16, 1889.

A SAD DEATH

Mr. and Mrs. Birchfield, with their 5 or 6 children, had a bee-tree cutting near here last Saturday evening. They all ate of the honey except one child, and were all soon attacked with blind dizziness, and went to the house. Maud, their little 12-year-old daughter, was taken very ill, and died in a few minutes. The rest of the family soon recovered and are now safe. Jessamine poison is supposed to be the cause. The bereaved family have the heartfelt sympathies of the Locust Bayou vicinity. J. W. HOLLIS.

Locust Bayou, Ark., April 2, 1889.

Friend G., I wish you would give us the full facts in this matter. If you will go and visit the family, and find out all you can about it, I will pay you for your time and expense.

CAN A QUEEN HATCH IN 11 DAYS FROM THE EGG?

I inclose a circular from Mr. Wallace, of Clayton, Ill., containing a statement that queens may hatch in 11 days from the egg. The statement I call in question, reads as follows:

One very curious freak in nature is, that the egg laid to hatch a worker bee can be changed to a queen, and be made to hatch in *eleven days*; but if to hatch a worker it would take twenty-two days.

In fact, at the convention at Clayton last October he claimed to usually get queens in 11 days, but he failed to convince either my friend Spencer or myself that the bees started his cells from eggs. All the books I have examined on queen-raising state the time as 16 days. Are there any exceptions exceeding, say, two days either more or less than the 16 days given as the usual time? Mr. Wallace certainly has some very nice-colored bees, and very gentle ones; but we could not tell any thing about their working qualities, for in his region there was no crop of honey last season, nor for one or two previous ones. DANIEL E. ROBBINS.

Payson, Ill., April 5, 1889.

I think you are correct; in fact, any text-book on bee culture should settle this matter. The queen may possibly hatch 15 days from the egg; but as a rule it is fully 16. Your friend, without doubt, gave the bees both eggs and larvæ, and the queens were hatched from larvæ which was five or six days old.

WHAT MAKES BEES DWINDLE?

About a week ago a cold northeast wind brought a couple of chilly days. On the coldest of these days we were away from home. Throughout the

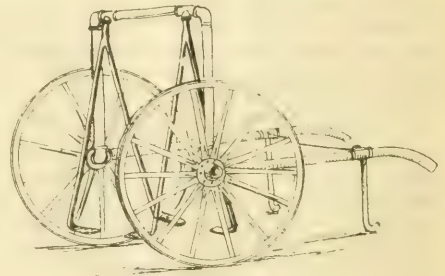
day the sun either shone hazily or was thinly clouded. When we got home we found bees in the water-tubs, bees in the chicken-troughs, bees in the buttermilk, bees in the grass, bees on the walks, bees on the pump, bees everywhere, benumbed, and unable to get home. That is what I find always dwindle bees—chilly, cloudy, damp weather. Of course, bees that are least healthy and rugged are least able to stand such weather, and, of course, the colony that is situated and packed so as to be driest and warmest will be the healthiest. High-pressure methods of stimulation, very early in the spring, also drive bees out to perish, often tearing down faster than building up. GEO. F. ROBBINS.

Mechanicsburg, Ill., April 19, 1889.

I think, friend R., that you are exactly right in the matter; and we should endeavor to have the bees stay in their hives during such weather, if there is any way to manage it.

HART'S HIVE-CART.

In moving hives, both single and double, I have often wished for some means of moving other than by hand. It has occurred to me several times that a two-wheeled skeleton barrow would fill the bill, the axle being cranked as shown in the accompanying drawing. From the cross-bar, two pieces of stiff wire or light iron rods could be hung, as shown on each side. To pick up a hive it would be necessary only to run the machine up to the back or front of the hive, and tilt the handles up until the hooks are on a level with the ground. Now slip the hooked wires under the floor-board of the hive. When



the machine is brought level, the hive will be lifted from the ground and will swing level into place, and could be easily moved anywhere, with this advantage—that one person could easily move either a two or three story hive, and it could also be easily adapted to weigh the hives, and also for an ordinary wheelbarrow by laying boards across.

There, friends, you who have to move your hives in and out of winter quarters, I think you will be glad if you could develop the idea into shape.

Avery, Iberia Par., La.

H. F. HART.

I judge from your description, friend H., that you have not yet made such a cart, and I think the principal trouble would be that a hive would swing on the bearings above, like a pendulum. It is true, this could be stopped by fastening two of the arms to the adjoining shafts; but then they would not have the feature to take up and let down the hive. If some device could be fixed, either to let them swing or fasten them rigidly, quickly and simply, it might answer a very good purpose.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 124.—*Upon what do you have a swarm—foundation, empty frames, or what?*

Foundation or combs. GEO. GRIMM.

Usually on foundation. O. O. POPPLETON.

Empty frames, and contract. A. J. COOK.

Combs, if I have them; if not, foundation.

C. C. MILLER.

Upon full sheets of foundation in wired frames.

JAMES A. GREEN.

If you make a swarm without brood, foundation is better than empty frames. P. H. ELWOOD.

I use frames filled with foundation or empty comb, but never empty frames. L. C. ROOT.

On frames with wired foundation, always putting one frame of brood and one of honey.

P. L. VIALLO.

Sometimes upon foundation, sometimes upon comb, sometimes upon empty frames.

MRS. L. HARRISON.

Principally on foundation, except when I am overstocked with brood-combs that need protection; then I use combs. R. WILKIN.

Upon empty combs, if I have them; and if not, upon foundation; and if I should have none of the latter, then upon empty frames. C. F. MUTH.

Full frames of foundation, to avoid the building of drone comb, or full frames of worker comb (in preference) when we have them. DADANT & SON.

Empty combs, if I have a supply; or if not enough, use some foundation; and if no combs, use full sheets of wired foundation, made by myself on a Given press. A. B. MASON.

Empty frames, with 2 inches of foundation in each frame; give them one or two frames filled with brood in all stages of development. We hive but very few natural swarms. We make nearly all our increase by divisions. E. FRANCE.

Six Gallup frames filled with comb, as a rule, with sections from the parent colony placed over them. Otherwise I use five frames having foundation starters in them, the sections placed over the swarm as before. G. M. DOOLITTLE.

Upon empty combs, if I have them; if not, upon full sheets of foundation, every time. It has been many years since I have hived a colony in empty frames or frames with guides, except some for experiment. JAMES HEDDON.

Upon good combs, if I have them, if early in the season, and honey is coming in too slowly to secure any surplus; upon empty frames after the bees have commenced storing surplus and building new comb; not any more upon full sheets of foundation at any time. H. R. BOARDMAN.

I prefer five frames of comb and two empty frames—putting the latter near the center, but not both together. As second choice, I use one frame of comb in the center and six frames with starters of foundation in them. If my bees would make

foundation as readily as they make comb I would have them make it for sale, instead of buying it for them. For cool weather and a small swarm, I use, of course, a less number of frames than seven.

E. E. HASTY.

I rather expected some of the brethren to recommend hiving bees on empty frames, according to the plan recommended by Hutchinson, in his book on comb honey; but not even Heddon makes a suggestion in that direction. Neither does Doolittle; but friend Boardman rather hints that way, and Prof. Cook may have it in mind, but his answer is too brief for us to be very sure.

QUESTION 125.—*Does the swarming impulse come from the queen or workers?*

I guess so.

A. B. MASON.

I don't know.

O. O. POPPLETON.

From the workers.

MRS. L. HARRISON.

From both, I think.

P. H. ELWOOD.

It comes from the workers, in my judgment.

JAMES HEDDON.

Probably from the dissatisfaction experienced by both.

DADANT & SON.

I do not know. Who does? I think, from the workers.

JAMES A. GREEN.

From the workers, but is instigated by the queen or queens.

H. R. BOARDMAN.

I do not know, but I guess, as in all well-regulated families, there is an agreement.

A. J. COOK.

I think from the workers; and possibly from the fact that there is no one watching them.

GEO. GRIMM.

First natural swarm, from the workers; second, or after-swarm, with virgin queen, from the queen.

P. L. VIALLO.

I guess both, and perhaps the drones too. I never knew any of them to be "backward in coming forward."

L. C. ROOT.

I think the impulse is simultaneous; just as the bees keep cells prepared for eggs as fast as the queen needs them, each inspires the other.

R. WILKIN.

It is hard to tell; but I never knew a swarm to come off unless there was a queen in the hive. But I have known them to swarm when the queen was caged in the hive. The bees returned to the hive.

E. FRANCE.

If blossoms yield, and bees are short of room to store honey, then the queen generally becomes also cramped for the want of cells to deposit her eggs. In such case (and they are in the majority) the workers start the swarming impulse, and the queen is among the last to leave the hive.

C. F. MUTH.

From the whole colony, in obedience to the command of the Creator, who said, "Go forth, multiply, and replenish the earth." All hands are interested in this matter when the time of swarming arrives, and work in harmony with nature's laws to accomplish the object whereunto they were sent.

G. M. DOOLITTLE.

I don't know. Workers without a queen will never start the swarming fever, but that does not prove that the queen does. I once had a swarm issue whose queen I had taken an hour or more before, so that the presence of a queen is not neces-

sary at the immediate time of swarming; and whatever originates the swarming fever, I feel pretty sure the workers can have it. C. C. MILLER.

The swarming impulse is the general restlessness of prosperity and enterprise, and the consciousness of powers within which are not being fully occupied. It affects both queen and workers—sometimes the queen the most, sometimes the workers the most. In proof of this we have the following facts: In a weak nucleus, during hot weather the queen often swarms out when no bees will follow her. She flies around for awhile, and then goes back—or very often intentionally enters some other hive. On the other hand, a prime swarm, when it first comes out, often goes back without clustering, but comes out and clusters all right next day. There is probably more than one cause for this; but I think it sometimes is because the queen, in the first instance, would not come out. That is to say, she had plenty of room to lay, and had no gravel in her shoe at all, and saw no reason for swarming. After-swarming is evidently caused mainly by the endless row the young queen kicks up because she is not allowed to destroy her rivals.

E. E. HASTY.

I presume that many of the friends will remember that I have, in the A B C book, mentioned an instance where a queen deserted an artificial colony and went to her old home, taking all the bees with her. In that case the queen certainly started the work, and took the bees along with her. Other facts, however, seem to indicate just as strongly that the matter was all in the hands of the worker-bees; so I am inclined to think that it is sometimes by mutual agreement; at other times, by the queen alone, and still other times by the bees alone.

QUESTION 126.—*What are the necessary conditions to induce swarming?*

Warm weather, and honey, or honey prospects.

MRS. L. HARRISON.

Abundance of bees, scarcity of room, a generous flow of honey, and fair weather.

R. WILKIN.

A slight flow of honey, if the colony is strong, has some drones and plenty of brood.

PAUL L. VIALLO.

Discontent, extreme discontent. There, I believe that covers the ground, if I understand the question.

H. R. BOARDMAN.

With a well-filled brood-nest at the swarming season, a prime swarm usually issues the first pleasant day after a queen-cell is sealed over.

P. H. ELWOOD.

A colony of sufficient strength, and an assurance that the flowers will give the swarm something to subsist on till combs can be built, and stored with honey.

G. M. DOOLITTLE.

Usually a strong colony of bees, combs filled with brood, no room for the queen to lay. So far as my experience goes, bees seldom swarm unless there is a good flow of honey.

E. FRANCE.

A prolific queen in a hive too small to allow her to use her whole laying capacity, and a crop of honey which crowds her even more. The smaller the hive the more numerous the swarms.

DADANT & SON.

I don't know. A full strong colony and a honey-harvest certainly tend to do it. There may be other causes.

A. J. COOK.

A populous colony, scanty ventilation, and lack of room for the bees to store honey, and for the queen to deposit eggs.

L. C. ROOT.

Ordinarily strength of colony and a moderate flow of honey. But sometimes no conditions are necessary—they'll swarm any way.

GEO. GRIMM.

A hive full of bees, warm weather, a good honey-flow, and lack of room to store honey or raise brood, are conditions which induce swarming; but bees will sometimes swarm in the absence of any one or two of these, and perhaps lacking them all.

JAMES A. GREEN.

The necessary conditions are different with different colonies. Sometimes swarming occurs when there is plenty of room for the bees, brood, and honey. Sometimes it will not occur, even when the hive is crowded with bees, brood, and honey. Usually a crowded condition of the colony, fair weather, and a flow of honey, will induce swarming.

A. B. MASON.

I'd give a good deal to know. I think some of the necessary conditions are, abundance of bees—at least for a prime swarm. When I commenced I supposed I could reel off several, but I confess I'm not sure of another one, and I feel just a little shaky about that one. Heat, lack of room, etc., may induce swarming; but they are not necessary. I know even less about it than I supposed I did.

C. C. MILLER.

The flowers yielding nectar, and a crowded condition in the hive; crowded for the want of room to store or to breed, or both; the instinct of propagation. The above are the ordinary inducements to swarming. But there are extraordinary inducements, such as the hatching of several young queens when the old one is superseded. In such case a swarm may issue at any time.

CHAS. F. MUTH.

The conditions which induce swarming may be divided into two classes, which may, though perhaps incorrectly, be dubbed as natural and artificial. The natural causes of swarming are, season, suitable temperature, proper honey-flow, strength of the bees, and the general animal impulse to multiply the species. The artificial causes, if we may call them so, are lack of room, excessive heat, and a quarrel among a new batch of queens.

JAMES HEDDON.

The absolutely necessary conditions are few—probably only one—a turgid condition of the vessels in the bee anatomy in which are stored the supplies for future brood-rearing. Abundance of food is usually a condition; but sometimes bees will certainly swarm when, as Mrs. Chaddock expresses it, they have scarcely three days' rations ahead. Crowding is usually a condition; but my colony that inhabited a hole in the ground, twice as big as they could occupy, swarmed like other bees, to my great disgust. If what is wanted is practical directions for making a reluctant colony swarm, I should say, crowd them, boom them by giving them sealed brood from other colonies, stir them up by looking them over every day or two, annoy them by destroying their drone brood. A proper combination of these stimulants will make almost any colony swarm, I think. It is worth remembering, that

the non-swarming bees that we occasionally hear of are mostly bees that have been totally let alone for years.

R. E. HASTY.

I expected friend Hasty to say that they swarmed because they got the swarming mania, even when buried in the ground. I do not believe that I exactly agree with friend Boardman when he says extreme discontent. If ever a bee is happy it is when there is a great abundance of honey and pollen coming in; and I think they are happy when they get the swarming mania. They seem to behave a good deal as the younger ones do during a Fourth-of-July parade. They are full of enthusiasm and patriotism, even if they are not big enough to know what it all means. If friend Boardman means that they are getting too happy and too important to remain longer in cramped-up quarters, then I think I agree with him.

REPORTS ENCOURAGING.

FROM 37 TO 60, AND 1600 LBS. OF HONEY.

JUNE 1, 1888, I had 37 stands in Simplicity hives, all in very good condition. I secured 1600 lbs. of honey in 1-lb. sections; average, 43 lbs. to the colony. The season was a poor one. I increased to 60 stands; these I put in the cellar about the middle of November. I took them out April 9th to 11th. All are in splendid condition, except one that had no bees in it. I think they had lost their queen and went into the hive by the side of it. My last year's crop of honey has all been disposed of except about 200 pounds. I got 15 to 20 cents per pound.

C. ABRAHAM.

Fayette, Wis., April 27, 1889.

HONEY COMING IN FAST.

Bees are doing fine. Pollen has been coming in steadily since March 15 (except on rainy days), and the honey is coming in so fast to-day that it can be plainly smelled at the entrance. Box-elder and willow are in bloom now. We use chaff hives. We will not remove the chaff from above the bees till fruit-bloom, which is in about a week. Do you think 100 drones are sufficient for queen-rearing? We have about that many pure ones, and there are no blacks out yet.

S. F. TREGO.

Swedona, Ill., April 22, 1889.

It depends altogether on how many hives of bees you have. If there are no other drones in an apiary of, say, 100 colonies, I should think that 100 drones might answer.

NO LOSS.

Our bees wintered well, no loss. Through the favor of a kind Providence we have never lost a colony yet. I have been an A B C scholar for about three years; commenced with one old hive. I now have eight in Root's chaff hives. I winter on summer stands.

JOHN LANGLEY.

Widnoon, Pa., April 25, 1889.

I never saw a finer yield or nicer honey than orange honey this season. I have 15 gallons from three hives.

J. W. SHEARER.

Micanopy, Fla., April 18, 1889.

Bees wintered well in cellar, and are now strong and healthy. I lost one out of forty colonies.

Falls City, Neb.

GEO. W. SCHOCK.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pigeon's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

THE PECAN-NUT OF TEXAS.

I have not finished up the pecans. The pecan is divided in halves like the hickory-nuts that grow in Ohio. There is a hickory-nut in Southern Texas not like that of Ohio. A pecan-tree raises a different pecan from that of its neighboring tree, either rounder, longer, or larger. A pecan-tree raises the same shape of pecan every year, and the same size.

Belton, Texas.

WM. MORGAN.

PAPA'S HILL DEVICE.

We have 32 colonies. One died, and one is very weak. I will tell you the way papa makes his Hill device.

First he takes the hoops of a sugar or salt barrel, cuts two pieces 15½ inches long, and one 8½ inches long, and nails them on a little block as the drawing shows. I made the picture.

Westphalia, Ind. FREDDIE GRAEPER, age 10.

Very good; but why nail the hoops on the blocks? If they are nailed together in the middle and clinched without the blocks they ought to hold and be a little better besides.

WINTERING IN CHAFF.

I thought I would try to get the picture of your own apiary, and tell you how pa winters his bees. He does it in chaff hives. He packs the bees where they were through the summer. He has 50 colonies, which he winters in chaff hives. I have drawn a picture of one. Pa generally unpacks his bees in the month of May.



I have two colonies of my own; and my little brother, who is four years old, has one which pa gave him. I think the hive that I drew is drawn pretty nicely. The hives that pa has take the L. frame. I am 12 years old, and go to school.

Cambridgeboro, Pa.

ALTON HARMON.

Yes, friend Alton, your drawing was really a better picture than our engravers have reproduced above.

DO BEES EVER LEAVE THEIR STINGS IN EACH OTHER?

I am a little boy 9 years old. Pa keeps bees. He has 15 colonies. He gets his supplies from you. Pa reads GLEANINGS, and likes it very much. I

love to read the children's department. I find by Question 108 that your correspondents, including Prof. Cook, have never seen a worker-bee sting another and leave its sting, in combat. This morning I found one stung to death, and left dead on the alighting-board, with the sting of the other left fast to it. I will send the bee to you in this letter, as an answer to your foot-note to the question.

Enola, Ark., March 3, 1889.

W. O. DALTON.

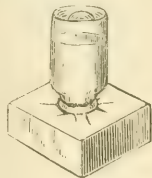
Yes, the bee has got the sting left fast to him. If you will turn again to pp. 138 and 139 you will see that we say, under certain circumstances bees do sometimes leave their stings in each other.

HOW PAPA WATERS HIS BEES.

I will tell you how my papa waters his bees. First he takes a block, one cubic foot large, and makes little cracks in the middle of it. Then he takes a glass, puts it over the can, then turns the can over so that the water runs in the little cracks, and the bees come and drink. Papa has 32 swarms of bees. One is dead, and one is very weak. Papa had to feed his bees this winter. In winter he feeds them with powdered sugar and honey, mixed. Papa is making an incubator. I thank you very much for the nice writing-paper you sent me the other time. I will try to make a picture of how the block and can look.

EMMA GRAEPER, age 9.

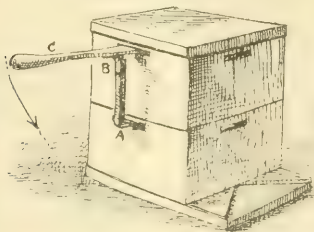
Westphalia, Ind.



Your drawing is a very good one. While it is not quite so finished as the engraving which we have made, it represents the idea just as well. We have given colonies water in this way for a good many years. For the last two or three years we have added a little salt to the water, and find that the bees will take the water much more readily.

A DEVICE TO SEPARATE SIMPLICITY HIVES GUMMED TOGETHER.

On page 90, GLEANINGS for Feb. 1, we noticed Mrs. Chaddock and her husband had trouble in removing the top story from the Simplicity hives. We will try to help them out of it by telling about the machine we use for that purpose. The accompanying drawing represents our idea. The post, B,



which is about 3 in. wide and $\frac{3}{4}$ of an inch thick, extends from the hand-hole below, where a piece of iron, A, is joined on at right angles to the post. This iron fits into the hand-hole of the brood-chamber. The post is joined to the lever, C, by a hinge, about 3 in. from the end. The lever should be 18 or 20 in. long, and flattened off at the top to fit into the hand-hole of the upper story. With this machine, which is not patented, father has no trouble in separating hives, no matter how tight they may be

glued. It should be made of hard wood. A common door-hinge will do to join the post to the lever. Galena, Ill.

HALLETT BROS.

HOW PAPA GETS RID OF THE CODLIN MOTH.

I thought I would tell you how my pa catches codlin moths, and other moths and bugs. When fruit-trees are coming into bloom he gets molasses-barrels just emptied, and puts water in them. Then he takes wire cloth and makes it in the shape of a funnel, with a hole in the little end. Then he drops it, small end first, into the barrel and fastens it to the top of the barrel by bending the edge of the big end of the funnel over the chime of the barrel. In the morning he skims out the moths and uses them for fertilizer for his fruit-trees. He covers it in day time to keep out bees. GEORGE HOBBS, age 12.

Middleport, O., Mar. 9, 1889.

PAPA'S BEST HELPERS.

I herewith inclose you a drawing which I made with one of your polished cedar rubber-tipped pencils. These scenes were enacted last summer in my father's apiary, about the time P. Benson went west. We were talking about what became of him just as I was about to bend the little tree over (as seen in first scene), in order that it might be reached and pulled over so that the swarm of bees that had clustered near the top might be shaken down in front of the hive. As I was creeping out a little further, the tree broke, and down came tree-top, bees, and all, in a bunch together, without a sting. Father remarked, "That is what became of P. Benson."



SWARMING AND HIVING, IN TWO ACTS.

Father says that his best helpers in the bee-yard are the fountain-pump and my little sister Ella, who may be seen in the drawing. The fountain-pump is used to bring down the swarm, and sister Ella brings the bee-veil and brush when needed. Father adds, that every scientist should have these helpers in the bee-yard, and a copy of Pilgrim's Progress in the home. WALTER A. CHAPMAN.

River Falls, Wis.

Your drawings were very good, and we have tried to reproduce them as nearly as we could. It is a little remarkable that you were not stung nor hurt, and we are all very glad of the happy result. An accident from which no great harm results is often the best kind of a warning against the repetition of another, the result of which might be tenfold worse. It is not safe to risk our bodies on limbs of questionable strength, particularly when after a swarm, for angry bees may add to a broken arm hundreds of stings.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

MARKET-GARDENING AT THIS DATE.

THE present year, 1889, just now seems to bid fair to give the working classes every thing in the way of garden and farm produce at lower prices than have been seen before for a long time.

We have had an abundance of almost every thing all winter. Apples sold until the first of May for from 25 to 40 cents a bushel. Excellent dry beans sold lower than for many years, and we have had beautiful eclipse beets on our wagon all winter at only 15 cents a peck; and this 7th of May I should be very glad indeed to sell 100 bushels at 15 cents a bushel. We have had nice cabbage all winter long for about a cent a pound. Toward the first of May good solid heads ran up to 5 cents a pound. We have beautiful solid heads of red cabbage, even now; and I wonder if anybody else has noticed that red cabbage keeps perfectly sound better than any of the white kinds. I should consider it an acquisition if I could have a white cabbage as hard and solid as the red, and that would keep so until the following May. We also have carrots on our wagon that were raised last year. Celery has been sold at 10 cents a pound all winter, and we have some now growing in the greenhouse. We have sold lettuce every day in the year. There is a very fair demand for it now at 15 cents a pound. Onions have been a drug, and there are said to be 1000 bushels in our vicinity now, without a purchaser. We have sold parsnips every day all winter until up to the first of May, and now we are lugging them out of the cellar and feeding them to the Jersey cow. Potatoes, I am told, are *given away* in our vicinity. We now get 30 cents a bushel for Snowflakes, with the sprouts broken off. Salsify has been about like parsnips, only we get 5 cents a pound for it where we got only one for parsnips. Spinach still brings 10 cents a pound, and we have for the first time succeeded in wintering it over nicely. It was sown so early last fall that it was fit to use before winter set in. We have sold it all winter; and although it had no mulching at all, the injury done by frost was very little. Just now the wintered-over plants have made a large fleshy stalk just above the root. In gathering it we cut it just below the ground, then wash it and place it in the basket with the root part uppermost; and the reddish pink of the root and stalk makes it very attractive. This fleshy part is also very rich and delicious. Spinach has found a permanent place in our Medina markets. We succeeded in having good wintersquashes until some time in February. Tomatoes of our own canning sell very well the year round. We save our tomato seed from the tomatoes that are canned; that is, we pick the choicest specimens of fruit, prepare them just as we do for canning, then scrape out all the seeds, saving them, and canning the other part. By this means we kill two birds with one stone. The seeds give us a profit, and the tomato sells for

enough to pay the expense of canning and gathering the fruit. The great canning factories, however, have reduced the cost of canning to so low a figure, that, were it not for the seeds we save, I am not sure that we could compete with them. Turnips are also on our wagon, but they sell pretty slowly.

Now during this season of great plenty there are three things of which we have not had enough, and that have brought and still bring excellent prices. These three things are asparagus, radishes, and lettuce. Last spring, for the first time we sowed some seeds of the Palmetto asparagus with a view of selling plants. We have had a good trade in the plants, and I am greatly surprised to find them sending up remarkably strong shoots even before our oldest asparagus. In fact, I had decided that, if one did not care any thing about the vigor of the plants, he might have asparagus for the table from the seed sown the season before. Well, in the *Orchard and Garden* for May I find the following:

"I have sold good average asparagus, one year from the sowing of the seed."

Of course, the ground must be up to the highest state of fertility. Our seed was sown on a strip of ground that I had manured up specially for strawberries. It was a sandy loam on the creek bottom. What made me think it would raise good asparagus was that some remarkably fine shoots came up along the creek before the ground was cleared up at all. I do not know that I ever saw or heard of asparagus being a drug in any market. Very likely it will be, however, very soon, especially after what I have said here about it.

The finest radishes we ever raised were from seed purchased of Stokes & Johnson, of Philadelphia. It was Wood's Early Frame. Every seed produced a nice-shaped radish. The seed was planted in the open air, in a spot protected by our buildings. I think it was sown about the middle of March. All insects were kept from troubling by the use of lime and guano, as mentioned last month.

To supply the demand for lettuce, we are obliged to gather our Boston Market a little before it makes any nice head.

We find the following in the *Orchard and Garden*, in regard to Henderson's dwarf lima bean:

We have already spoken highly of the new dwarf lima bean. We did not speak by the catalogue, but by practical experience, for it was grown here last year. Its chief merit, aside from its bush habit, is its earliness, and almost its only drawback the small size of the beans themselves. In quality they are not a whit behind the old sort, but are in fact rather better. Having secured the habit in the earliness, two important points for Northern culture, our cultivators will not be long in gaining size for it.

It seems we are going to have at least a few of Kumerle's dwarf lima beans, as the following note from our jovial friend Livingston (the man who has given us so many nice new tomatoes) indicates:

Mr. Root:—Have you found any one to reduce your surplus of gold by sending you that ounce of Kumerle's dwarf lima beans? If not, we may accommodate you if our grower has not already sprouted the beans. We were fortunate enough to

secure early a very few packets. We prize them, but *might* divide "for gold."

A. W. LIVINGSTON'S SONS.

Columbus, Ohio, May 3, 1889.

Some years ago I purchased half a peck of what is called Dreer's Improved lima bean. The beans were excellent, and they were packed so close in the pods that they squeezed the ends of many of the beans so as to be square, unlike an ordinary lima bean. In flavor they equaled if not excelled, any thing in the way of lima beans we have had on our table. I dropped them because I thought they did not yield as many bushels per acre as the common limas. Well, when I first saw Kumerle's lima bean they struck me at once as being remarkably like Dreer's Improved lima; and now it transpires that they are a sport from the latter. Those who have seen them growing say they grow about two feet high. I should think they would be liable to be blown over during fierce storms of wind and rain. We will give you a photograph of the plant in a few months, nothing preventing. Those who have not a paper of Henderson's Improved lima bean will have to send in their orders now very soon, for we shall have them all in the ground that are not sold, certainly as soon as June first.

Just one thing more in regard to Kumerle's lima bean: If the seed is now worth *its weight in gold*, we can not well afford to wait till 1890 to get a new crop. As GLEANINGS makes its way to localities where the sun shines at midnight, possibly it reaches some one who could take the beans as soon as they ripen here, plant them, and get a new crop ready to plant by the first of next June. Perhaps friend Poppleton, away down in Cuba, could manage it. If any one else whose eyes rest on these pages lives where lima beans may be raised in the winter time, will he please communicate with us?

Later.—Well, we have got them at last. Six packets of the Kumerle lima beans—each packet containing 25 beans. But to get them we were obliged to balance them with gold coin, and the 150 beans cost us just \$78.00, or a little over 50 cts. a bean. Never mind. If it is not wrong to "count chickens before they are hatched," we might speculate that each bean should raise us 50 more beans.* Then in the fall I should have, from my 150, 7500, which will probably give one bean to each subscriber, who cares about bush lima beans, for the year 1890. Now, some of you may think that this is awful, to pay \$78.00 for a handful of beans; but there is something I rather like about it. Along in my talks about what to do, I told you a gardener or fruit-raiser had a perfect right to get all he could for his product. If he can produce strawberries under glass so as to have them when nobody else has any, he has a right to have a dollar a quart if he can get it. And in the same way, if you can produce a crop of any thing when everybody else fails, it is perfectly right that you should have just as much as anybody will pay you for it; and if you have

sole control of some new and valuable variety of vegetable, for which there is universal want and demand, I am glad to see 50 cents—yes, or even a dollar—offered for a single seed. There are doubtless more of these Kumerle beans in the hands of seedsmen; but very likely they are not to be bought—no, not even for their weight in gold.

Later.—Here comes a bush lima bean from Nebraska:

Friend Root:—I see you are very much interested in bush lima beans, so I will send you a sample of some from Nebraska. How do they compare with Henderson's, Landreth's, and other bush limas? Please let me know what you think of these Nebraska limas. If you desire, I will tell you all I know about them. S. H. BEAVER.

Tamora, Neb., May 6, 1889.

Why, friend B., your sample of beans looks exactly like Henderson's, only they are considerably larger. If some one had picked the very largest beans they could find, out of a good lot, they would be exactly like those sent, as near as I can tell. By all means tell us all you know about them, and tell us how many beans you can get hold of.

May 9.—We have been having the most beautiful May weather for four or five days. The sun rises away up in the north, and pours its genial rays from half-past five in the morning until seven at night. I do not know that I ever enjoyed any thing in the line of God's gifts more than I have the sunshine and the open air this morning. The apple-trees are in their bloom, and the bees were tumbling before their hives with great loads of apple honey, before the sun was up. I do not know that I ever noticed this before. It is, perhaps, owing to the fact that we have had no dew for four or five nights now in succession; but as the ground was soaking wet before this warm spell came on, nothing seems to mind the scorching rays, even at noonday, unless it is our newly transplanted cabbage and celery plants from the seed-bed to the plant-garden. We have to water them and shade them, or else they would soon "go dead." Well, I have been down in the creek bottom, planting our novelties. You see, we sent for almost all of the novelties advertised in the catalogues. Then it is a nice little task, I tell you, to plant them carefully, and label them. We think it is almost as important to tell whom the seed came from as to tell what it is; and we also want the stake at the head of each row to tell what the seedsman claimed for it. For instance, Burpee has a new black wax bean. The seeds were twice as large as our old black wax. He claims that they are a great deal earlier, have larger pods, and are more productive. Now, when the beans begin to get ready to gather, I do not want to be obliged to lug a great lot of catalogues down into the field to see what the introducer claimed for them when we made our selection of seeds last winter. Well, Burpee has fixed it all nicely for us. His seeds are put in paper so stout that it is almost like cloth; and all he claims for the contents is plainly printed on this same stout paper;

* If they give 100 or more, I shan't complain.

therefore, all we have to do is, when we are ready to plant, to pour the seeds out of the package into a little shallow tin basin. Then the empty paper is wrapped round a stout stake, and fastened by four tacks. This was my part of the business. The stake was then driven into the ground so far that even a smoothing-harrow would not break it off nor pull it up. Then the basin of seeds was set down against the stake. One of the men then followed and put the seeds in, covering them with nice mellow dirt. Our ground was first prepared by plowing, harrowing, and rolling; then with the seed-drill we sowed phosphate over the whole surface. Lastly it was marked with our disk marker. This puts the whole field in regular order; and all kinds of seeds can be planted rapidly and systematically. The ground was marked over all the same. The melons, squashes, cucumbers, etc., were put in only every other row. Sweet corn, peas, and the regular crop of beans, are sown with the seed-drill, at the same time that we sow the phosphate.

Now, there is one more thing that makes our creek-bottom ground very pleasant. It is that spring that I have told you so much about. During these hot days, pure limpid water is constantly pouring over the sides of the sewer-pipe that is set over the spring. To keep the sun from shining directly on the surface of the water, a tin hood covers the sewer-pipe. This hood is painted, so it does not look unsightly. It also keeps grass, weeds, and dust, from blowing into the spring. The hood opens on the north side. Some steps go down to the spring, and a tin dipper hangs on a little bush right beside it. When one is tired as well as thirsty he can sit down on the lowermost step as he dips the water from the spring, and drink leisurely. How deliciously cool it is! If one's hands and face are sweaty and dusty, there is nothing to hinder dashing the cool water over both. If there is anything in this world that fits the little line,

"A thing of beauty is a joy for ever,"

it is that spring. It is almost in the center of the grounds, so that the workmen have but a little way to travel whenever they need a drink. We do not have any jugs nor tin pails to lug around and get lost. You will remember that we should never have known of this spring at all had we not searched diligently for it; and I think that you too might have a spring of water right out in the lots if you would only hunt it up. "Seek, and ye shall find," the Scripture says.

Yesterday in the afternoon, when the weather was so hot, I raised the lid of the well by the windmill. Sure enough, that faithful and untiring worker had pumped the water out, clear to the bottom, and another beautiful little spring was seen down at the bottom of the well, bubbling and gurgling as it ran out of the rocks and between the bricks, down into that little central basin where the pump was sipping it up as fast as it could run in there; and off in the lot adjoining, the Jersey cow was enjoying herself in sipping the water from her

tub. Then as the tub overflows into the carp-pond, the carp were probably enjoying their share of the water that pours, winter and summer, into that, to make up for evaporation and seeping. Thus you see, if you can not have a spring on the top of the ground, you can have one down at the bottom of the well; and I think you want a windmill to pump the water out so as to keep the stream running, if you want to have it nice. The windmill has been going for almost two years, and I do not remember that it has ever yet disappointed us for one hour. Of course, there have been some days when the mill did not run very much; but there has always been water enough ahead. Only last evening my wife remarked that the windmill was running slowly, when scarcely a breath of air could be perceived. It turned fast enough, however, to keep a slender stream of water running.

HOW WE RAISE POTATOES IN THE AMERICAN BOTTOM.

Lest some of the readers of GLEANINGS are not acquainted with the location, I will say that the "American bottom" is on the east side of the Mississippi, opposite St. Louis, and extends north to Alton and south to Chester, and has a depth, back from the river, of from 5 to 14 miles. The soil chosen for potatoes is usually the dark sandy loam. Very late fall plowing is the rule for at least half of the potato crop. The fall-plowed ground is used for the very early planting. The planting here begins just as soon as the frost is out of the ground (sometimes in February). A word about seed. With very few exceptions the farmers of the bottom never plant potatoes for seed that they have raised. They buy seed from the North, or of farmers on the bluff who raise their potatoes under straw. Our own potatoes do not make as strong a growth as the imported ones. Our standard potato here is the Early Ohio, and next comes the Early Rose and Beauty of Hebron. For late potatoes we have the Mammoth Pearl and the Peerless.

On account of the rapid and continued growth of weeds, the potatoes are always planted in checks and cultivated each way. They are still dropped and covered by hand. As soon as the potatoes are up enough so that the row can be followed they are gone over with the bar-plows, and two light furrows of dirt are thrown on each row. The ridges are then dragged over with a rail, and partially leveled down. This destroys all the weeds, and at the same time seems to benefit the potato. The second and third cultivating is done with the one-horse cultivators; the fourth with the bar-plows; and to lay them by we use a large single shovel and run once between the rows. But before the time of the last plowing the bugs will claim some attention or claim the crop. The only way we have been able to circumvent their ravages is by poisoning them. One teaspoonful of Paris green to two gallons of water, sprinkled over the vines as often as necessary will do the work. It would be quite a large undertaking for a man to hire the bugs picked off from a fifty-acre patch. The potatoes are now laid by, and the next process is the digging. We still rely on the hoe, the digger being paid by the barrel, 3 bushels, at from 8½ to 20 cts., according to circumstances. The digging begins about the middle of June, and

continues until late in the fall, digging at whatever season they can do so most profitably.

Venice, Ill.

G. W. T. REYNOLDS.

GOD'S GIFTS.

I agree with what John Craycraft says, Oct. 15, 1888—give us the "garden sass." This makes me think, I can raise seed of certain vegetables here to good advantage without their mixing, if I could sell it after I have raised it. I have been, the past three years, using muck in privy and hen-house, as mentioned in your book, What to Do, and find it the best and cheapest absorbent (except road dust) I ever used. I am using it this winter behind my two cows. A good painful, sprinkled on the plank after cleaning out each day, keeps the stable clean and sweet. I draw it out in August, when the water is low, pile it up, and let it freeze one winter, then dry it, then put in boxes or barrels up off the ground, and under cover. When it is dried and ground fine, like sawdust, it is a great thing to keep out frost. I have about two acres on my ten-acre farm (one of God's gifts), of peat and muck land, all the way from 1½ to 3 feet deep, which is easily drained, is perfectly level except for bogs, and covered with grass.

R. B. KIDDER.

Columbus, Wis.

THE TURNIP THAT STANDS IN THE GROUND ALL WINTER, WITHOUT HARM.

Our readers may remember that Abbott L. Swinson, of Goldsboro, N. C., sent me some of the seeds of this, last fall. The turnip is a cross between our well-known seven-top turnip, which has been raised so largely for bees and greens, and one of our other varieties producing a bulb. Well, I am happy to tell you that this turnip is a success. They stood in the ground all winter, apparently without injury; and now they are furnishing just as many blossoms for the bees as I ever saw in the seven-top turnip. The bees are humming on them now, this 11th day of May. We propose to save the seed from the whole crop.

AN EARLY PUMPKIN FOR PIES.

In response to my inquiry, 13 friends sent me seeds of an early pumpkin. That they were not all the same thing, is pretty evident from the seeds. In fact, the seeds seem to indicate that scarcely two of them were alike. We have planted one hill of each, labeling it with the name of the person sending it, and in due time we propose making our report.

FEEDING IN THE CELLAR.

CARRYING BEES THROUGH SUCCESSFULLY, WITH NO STORES AT ALL TO START WITH.

I HAVE a little report to make, which may be of advantage to others who get caught in a tight place. We have had in this locality two very bad years for honey; 1887 found us in the fall with plenty of bees and nearly empty hives, so far as honey was concerned. I fed up and brought my bees through the winter on a mixture of honey they had in the hives, and syrup. Spring came, and opened out well. Every thing was lovely till the first of June, when the fact dawned on us that there was no white clover in the country, and the alsike had no honey in it. July arrived, and a little basswood came in. None, however, was stored in

the surplus apartment. A few, say 5 or 6 out of 23, swarmed. When the last of September came, the hives were full of old bees, no pollen, and very little honey. I divided it equally among them, after doubling the lighter ones up, till I had only 20 swarms left. I was very busy with my practice and building, which occupied my time, and I saw little of them till a warm day, the 6th of November, when they were having a good fly. I looked them over to see how they stood for provender. To my surprise I found they had already eaten up 75 per cent of what I had allowed them 6 weeks before. I went to work and took all the honey in the apiary, and gave it to six hives and put them up in chaff hives for winter. The rest, fourteen in number, I carried to a north room in the cellar, darkened the windows, and made up my mind, contrary to all rules, to save my swarms. I took off the supers, and cloth off the top of frames, laid one frame flat on the rest, and once a week I opened the doors from the furnace into the rest of the cellar; and when the heat got up to about 65 I went in and fed them, giving each hive less than a teacupful of syrup. The next morning I shut off the heat by shutting the doors, and let them alone a week. Temperature during the week stood at about 56°. This I kept up till April 15th, when I saw pollen coming into the hives outdoors. I brought them from the cellar. I had concluded they were very light in bees. Two of the fourteen were; the rest are good average swarms, covering, when in cluster, from four to seven Heddon improved Langstroth frames. On the whole they are not as well, as strong in bees, nor as far advanced, as those I left out in chaff hives.

Honey is now coming in from the soft maple. One hive I examined this afternoon had several combs, outside of those with eggs, filled with nectar, and the margin of seven frames that had eggs and larvae in the center were completely filled. I would not advise a novice, nor, in fact, any one, to try the experiment. I had every advantage. I could heat their room as I liked, and as often as I liked. Another thing I proved, too, was the fact that light is no detriment. I happened to be going by the door once in day time, and observed that the sodding I had up at the basement windows had settled 2½ or 3 inches, by the frost having gone out, making it as light as day. As the sun was pouring in this opening, to my surprise the bees were as quiet as in the darkness of the night, with no cloth over them, and the thermometer at 46°. I always took a light, a common lamp turned up, and set it down in the middle of the room, and there was seldom a bee that left the hive; never more than two or three during any time I was feeding them.

DR. A. E. HARVEY.

Wyoming, Ont., April 18, 1889.

Friend H., with a furnace in the cellar to dry it off and warm it up, it is not any wonder that you succeeded; and in regard to the matter of light, when bees are in a state of perfect health I do not know why they would be any more likely to fly out at a temperature of 46 in the cellar, than if they were outdoors. Bees in health seldom go out of their hives unless the temperature of the air runs to about 55. If the sun shines, they often go out in sunny nooks; but it is because the sun raises the temperature, and not because the light entices them.

MYSELF AND MY NEIGHBORS.

I know that my Redeemer liveth.—JOB 19:25.

DEAR friends, I have thought best to submit to you to-day a sermon that was preached in our pulpit a few weeks ago. I have decided to do this because the question has come up so often, "How shall I know that I am a Christian?"

CHRISTIAN ASSURANCE; SERMON BY REVEREND NORMAN PLASS.

Examine yourselves whether ye be in the faith; prove your own selves.—II. COR. 13:5.

A question that is often asked is this: "*Can I know whether I am a Christian or not?*" It is variously answered. One will tell us that he has an abiding and blessed assurance that he is a child of God; another will say that he is confident of it at times, while again the light of his hope grows dim and he is left in doubt. Still another will say that he has never experienced an assurance that his name is written in the Lamb's book of life. The first confidently exclaims with Paul: "*I know whom I have believed.*" The second, while at times appropriating these words, is at the next moment ready to exclaim with Thomas, "*We know not.*" The third is like the heroine of "*Miss Tooscy's Mission*," who, although a sincere Christian, yet when in time of revival the presiding clergyman "invited all those who were conscious of conversion to remain, and the rest to leave, without a moment's hesitation went out, and found her way home, sobbing and broken-hearted."

Were the question, "*Do I know whether I am a Christian?*" it would be thus variously answered. But it is a question of *possibility* and *privilege*—"Can I know?" As thus asked, we can best answer it by considering some of the *conditions* we have to fulfill in order that we may be Christians, and by deciding whether or not we can know that those conditions are fulfilled. I hold that it is the privilege of every believer to know whether or not he is saved—and not only the privilege, but the *duty*, for the words of our text come to us in the form of a *command*: "Examine yourselves, whether ye be in the faith; prove your own selves."

The basis of the Christian life is a *belief*—not a mere *intellectual* belief, implying simply assent to a proposition or truth, but a belief that *implies a surrender of the life*. It is such a belief as the wife has in her husband—a belief not merely in his integrity and sincerity, but a belief that leads her to *surrender herself*, to a large extent, to his *care and direction*. Not only is it the *privilege* of the wife to know whether she thus believes in her husband, it is her *duty* to know before she makes the surrender. In like manner it is our own privilege and our duty to *know* whether we exercise *self-surrendering belief in Christ*. Why can we not know just as well as the wife whether we exercise such a belief or not? This implies a surrender of the *affections*. What would you think of a woman who should say that she didn't know whether she loved her husband or not? It's her *duty* to know, even before she becomes his wife. Should not, then, Christians, who as a body are called "the bride" of Christ, know whether they love Christ or not?

We speak of "a change of heart," or "the new

birth." What is the change of heart? Simply a *change of affections*. A person says: "I don't realize that I have had a change of heart, so I don't believe I could have had, for I should know it if I had, wouldn't I?" That depends entirely upon what you make the *standard of your judgment*. If you have expected to feel your *fleshy heart* gradually passing away and another heart taking its place, you no doubt have failed to witness the change. If you expect a great upheaval of your emotional nature, followed by a great influx of feeling and untold joy, you will no doubt be disappointed, and conclude that the change has not come. Such an overflow of feeling results only upon a great change in *belief and life*; and with most of us, when we become Christians, there is a change neither in belief nor in life, but only in the point of *surrender*. A young man who was troubled at this point came to his pastor. After a few words the pastor asked, "What do you understand the heart to be?"

"The affections," replied the youth.

"That is correct. Now, are you sure that your affections have not changed? Did you love to pray a month ago?"

"No! I was accustomed to pray, but it was a mere formal duty."

"Is prayer a pleasure to you now?"

"It is, decidedly."

"Did you enjoy association with Christians then?"

"No! not at all. I shunned them."

"Do you shun them now?"

"No! I like to be with them."

"Do you love to read the Bible?"

"Very much."

"Did you a month ago?"

"I can't say that I did."

"And can't you think of several things that you used to find pleasure in that you don't care for now?"

"Oh, yes! very many."

"Can't you see, then, that you have met with a change of heart? If by the heart is meant the affections, and your affections are changed from what you once loved to what you once hated, so that now you care not for the former and hate the latter, you have certainly experienced a great change of heart."

Here was a clear case. All that young man needed was to understand himself. Whoever can answer those questions as he did, has, certainly been born again. With some of you, there may be but a single indication of the change that you can now discern. You may enjoy the prayer-meeting now, whereas you didn't before. A young man who is seeking Christ, but who doesn't think he has found him yet, said to me a few evenings ago, after the prayer-meeting, "I never enjoyed a meeting like that before." Is not that an indication that he has found Christ? You may like to be with Christians now, whereas you shunned them before. Take these new affections as indications that you have been born again.

But a person says to me: "I have *always* had these feelings. I never thought that I hated God. I always liked to read the Bible. I always loved to associate with Christians. Yet I never felt that I was a Christian." But if your affections are upon these things, you are a Christian.

"What!" you exclaim, "could I be a Christian and not know it?"

Yes, I think you could. You can't be a *full-grown*

man without knowing it, nor can you be a fully developed Christian without a knowledge of the fact. But you can be a child in Christ, and know nothing of it. You spent many months of your life before you realized your existence in this world, and came to the consciousness that you were a child. So it is possible for a person to have been born again a long time before he has awakened to a consciousness of the fact. Do not call in question the possibility of your being a Christian because you can not trace the beginning of the Christian life, any more than you would question your physical existence because you can not trace the early months of your life, or can not remember when you were born. There are a great many people, recognized as earnest and sincere Christians, and themselves conscious of a change of heart, who are compelled to confess that they can not mention a time when they gave their hearts to Christ. What a great many need is to realize that they are already Christians, because they love God and the things of God; and all that they need further is to come out and confess Christ before the world. A gentleman of my acquaintance was very ill, and not expected to live. For two weeks he seemed at the point of death. He had been a godless man, and during that time I spoke frequently with him regarding Christ. He seemed to make a complete surrender, and told his friends that he had found Christ. At length he grew better, and then we discovered that he could not remember a single event of those two weeks—not a single call, not a circumstance, not a word spoken, could he recall. Yet, when he came to himself, it was with the joyous consciousness that he had found Christ. The weeks themselves were blanks, yet in those weeks he had been born again, and afterward the consciousness of that fact was his. Is it not true of us, that in one event of life or another, we sometimes unconsciously yield up the point that separates between us and God, so that we become truly his, and all that we need is to come to ourselves and realize it?

We spend too much time in examining our own hearts. We might conceive of a crazy man cutting out a friend's heart and dissecting it to discover whether or not the friend loved him. Would he ever find out in that way? Yet in much the same way do we often go about examining our own hearts to discover whether or not we love God. While the seat of the affections is in the heart, we might spend a lifetime in examining it, and yet never find the affections. Don't let us stop and look at our hearts to see whether they are old or new, but let us look out toward God and ask whether we want to please him by doing his will; and if we do, then are we friends of God; and if friends of God, then surely we have been born again. We know whether we believe in Christ with the belief of self-surrender, and if we do, that's enough—let us go on and do what he would have us, and leave the matter of a new heart with Him who created and whose it is to re-create. If we have thus done our part, we can have the assurance that God will do his part toward making the heart new. There may be no wonderful transformation, there may be no sudden change, there may be no great revelation of light, but we have simply to decide the point of self-surrender to Christ, leave the rest with God, and go straight ahead.

We sometimes call the Christian life a vocation. Can we not know whether we have entered upon

that vocation or not? That is not a question hard to decide in other vocations—why can we not decide it here? In a little book entitled, "Being a Christian," by Dr. Gladden, I find this illustration: "Ask a man what his business is, and he will answer promptly enough, 'I am a carpenter,' or, 'I am a lawyer,' or, 'I am a druggist,' or, 'I am a machinist,' as the case may be. The carpenter does not say to you, in a sad, uncertain tone of voice, 'I don't know; I have been trying for five, ten, or forty years, to be a carpenter, and I have sometimes hoped that I was one; indeed, there have been seasons when I felt quite sure of it; but I am often in great doubt. He may say, indeed, 'I am not so good a carpenter as I might be; I have seen nicer workmen; but I can do a pretty fair job, and I am not ashamed of my trade. It is one that I freely chose, and that I have done my best to learn; and I shall work at it as long as I live, if I can find employment.' Surely there is nothing presumptuous in saying as much as that. A man who did not have his mind made up about such a matter, and who did not know his own mind, would never accomplish much in this world." Why, then, is it not just as possible and just as essential that a person should know that he has chosen the Christian profession, that he has entered upon the heavenly calling, even though as yet he may be only an apprentice at the trade? If uncertainty seems strange in the one case, why not as unaccountable in the other? If we have chosen the Christian calling, and are working at it every day, trying to improve and perfect ourselves in every way possible, we certainly ought to know the fact. One reason for so much uncertainty, just in the line of this comparison, is because we don't clearly understand what we are about when we set out in the Christian life—we don't comprehend that we are choosing a life calling, and hence should know our choice. Another source of uncertainty, here suggested, is portrayed in the boy's remark, when asked whether his father was a Christian. "Yes," he replied, "he's a Christian, but he a'n't working at it much." We don't work at our trade constantly enough to keep our zeal up. A man who didn't work at the carpenter's trade more than half a day a week might well question sometimes whether he were really a carpenter or not. A carpenter who never did, and never tried to do, a good job, might well be declared by his fellow-men to be no carpenter at all. How, then, about professing Christians who are only half-hearted in their work? Can they be called Christians at all? If not, how about their assurance of the fact? Another source of uncertainty is because, when we fail at some point, we conclude that we were mistaken and are not Christians at all. But when our purposes are good and our endeavors earnest, are not our failures excusable, just as the carpenter is excusable when he does the best he can, although he may not do quite as good a job as another carpenter? We should know that we have chosen the Christian calling; we should steadily persevere in it; and when mistakes occur, rise superior to them and press resolutely on "toward the prize of the high calling of God in Christ Jesus."

Can we not tell whether or not we are spiritually blind—whether we have received spiritual sight? Think you that any blind man whom Christ healed would be uncertain of that healing? Are we told of any who said he didn't know whether he could

see or not? You recall one whom the rulers of the Jews attempted to confuse, telling him that Christ was a sinner and could not be divine, threatening to excommunicate him, accusing him of forsaking Moses, to all of which declarations and accusations he replied: "Whether he be a sinner or no, I know not; *one thing I know*, that, whereas I was blind, *now I see*." Can't we know that much, however many points of theology we may be uncertain of? Possibly we are more like the man whose eyes Christ touched, and then asked if he saw aught. To which he responded: "I see men as trees walking." Then Christ again touched his eyes, and he saw "every man clearly." If we have even a little spiritual sight, can't we know it? If our vision is fully restored, how can we help understanding it?

Have we not ground for believing that we can know whether we are called or not, in the very character of Christ? For illustration, suppose that Dr. Pasteur's theory of inoculation to prevent hydrophobia were found to be an assured success, and that, having never fully declared the secret of the cure, Pasteur should decide to make it known to the world, so that any who had need could at once apply the remedy. But he declares the secret in words so technical, or so indefinite, or so unmeaning, that not one in a thousand can comprehend what he means. A poor fellow has been bitten by a mad dog, and is trembling in fear of approaching death, and knows that here a sure cure is spoken of, but he can't understand just what to do. He does as he *thinks* he is directed, but can't be sure, and waits in dread anticipation to see whether the rabies will seize upon him. Rather than extol Pasteur as a benefactor, would you not rather condemn him because he made known the remedy in such uncertain terms that men can not know whether they have properly applied it or not? What, then, would you think of the "great Physician" if he should set out to declare to the world a remedy for the malady of sin, and should be so indefinite in his declarations that those who feel the dread poison coursing through their veins, and are crying out to be saved, could not understand what the remedy was, and could not know till death began to creep upon them that they had failed to comply with those conditions? The very character of Christ compels us to conclude that we can know whether or not we have fulfilled the conditions of eternal life. We find the directions very explicit—"Whosoever *believeth*—shall not perish, but have everlasting life;" "Verily, verily, I say unto you, he that *heareth* my word, and *believeth* on him that sent me, hath everlasting life, and shall not come into condemnation, but is passed from death unto life"—no future translation—"is passed," *even now* new life is coursing through his veins; "Hath everlasting life," not, "shall have," or, "may have," but "hath"—a present possession, a present reality, and should be a present assurance.

The Bible reveals to us a number of tests, by which we can know whether we are Christ's or not.

I. John 3: 14.—"We know that we have passed from death unto life, because we love the brethren."

Rom. 8: 16.—"The Spirit beareth witness with our spirit, that we are the children of God."

I. John 5: 10-12.—"He that believeth on the Son of God hath the witness in himself—and the witness is this, that God gave unto us eternal life, and this

life is in his Son. He that hath the Son hath life; he that hath not the Son of God hath not life"—so reads the Revised Version. Note, the change in the words underscored—"and this is the record," of the A. V., is changed to "the witness is this," in the R. V. We are not compelled to probe our hearts for the witness. We have the "witness within ourselves," to be sure; but, likewise, "The witness is this, God hath given to us eternal life—He that hath the Son hath life." Have you the Son? That's the question. If you have received the Son, you have life. "These things," adds John (v. 13), "have I written unto you, that ye may know that ye have life." Just take your Bible and read the whole of this *First Epistle of John* if you want to know whether you are Christ's or not. When you have finished, I am confident that you will exclaim with Paul: "I know whom I have believed, and am confident that he is able to keep that which I have committed to him against that day."

Now, don't be discouraged if you have not this assurance. Do not therefore conclude that you are not a Christian. Only know that it is your blessed privilege to have it, and be not content till it is yours. "Give diligence to make your calling and election *sure*." "Examine yourselves, whether ye be in the faith." It is your duty to know. Of course, you may be a Christian without this assurance. A letter may be written, and yet remain unsealed. A child may be heir to a large estate, and yet not have the full enjoyment of it. A weak faith saves, though it may not give the assurance of salvation. Many noted Christians have never experienced this blessed assurance. Some one spoke to Archbishop Leighton of his assurance. "No, truly," he said, "I have only a good hope, and a great desire to see what they are doing on the other side."

"You have your feet upon the Rock," said a friend to Wilberforce.

"I do not venture to speak so positively," replied the philanthropist. "but I *hope* I have."

But is it not our privilege to *know* whether we stand upon the Rock or not? "Whosoever *heareth* these sayings of mine, and *doeth* them," says Christ, "I will liken him unto a wise man which built his house upon a rock." Can't we know whether we hear the commandments of Christ, and, as best we can, do them? When Philip de Morray was asked, in old age, if he had a hope of future bliss, he replied: "I am as confident of it from the incontestible evidence of the Spirit of God, as I ever was of any mathematical truth from all the demonstrations of Euclid." Can we not at least attain to a degree of confidence such as this?

Sometimes this comforting ray from the eternal Sun of Righteousness is brighter than at others. Our physical condition sometimes causes despair, as it did to Elijah when he reclined exhausted beneath the juniper bush in the desert, and requested that he might die. The state of one's health, even the weather, often determines whether our view of heaven is bright or dark. Try as I may, I can never feel as cheerful upon a cloudy day as when the sun shines upon the earth. Dr. Alexander, an eminent theological teacher at Princeton, who was depressed by the raw ocean air, when once asked by a student whether he always had a full assurance of faith, replied, "Yes, except when the wind blows from the east."

Defective views of the atoning work of Christ be-

cloud our vision of heaven. Cherished sin, or idleness in the Master's service, causes us to doubt. We must watch out for all these depressing causes. I don't believe in thrashing one boy for what another has done, neither do I believe in *pummeling the soul* because of doubts, when often our frail bodies or the "spring fever" or our stubborn wills or our perverse natures are to blame. Let us at all times keep our assurance of sonship bright and clear. If my observation is worth any thing, assurance makes the holiest Christians, the happiest Christians, the most active Christians, the firmest Christians. Let us pray God that *that* assurance may be ours.

I want to add just a few words concerning a single sentence toward the close of the above. The sentence is this: "Cherished sin, or idleness in the Master's service, causes us to doubt." My experience would indicate that *cherished sin* is the cause of more doubts than any thing else in this world. One who allows his inclinations to persuade him to do that which he knows is wrong, can never enjoy the peace that Christ gives, and can never feel satisfied with his Christian experience. A man signs the pledge, and stands up publicly before his fellow-men, and promises, God helping him, to break away from the sinful habit. As time passes, the old appetite asserts itself so strongly that he turns from his Savior and listens to Satan while he intimates that perhaps it is not well to break off all of a sudden, or something like that. Then he takes just a little, and then tries to hold up his head before Christian people, and to make the world believe that he is enjoying the peace that Christian people ought to enjoy. Poor, foolish, sinful man! He may deceive his fellow-men, but he can not deceive God. It is of no use for him to pray, for we are told in God's holy word—

If I regard iniquity in my heart, the Lord will not hear me. PSALM 65:18.

Of course, there is no *if* about it in such a case, for the sinning one knows he is not a Christian. In the same way, one loses his faith in the Savior by just a little dallying with sin, or a little departure from the narrow and straight path of duty. One quickly loses his peace of mind to a certain extent, and opens the way for doubts and unbelief, by simply letting his mind dwell on the forbidden thing. Probably we are all of beset by temptations, more or less; but if we wish to have a bright, clear faith in the Lord Jesus, it behooves us to bestir ourselves when temptation comes, and to turn our backs at once, with the prayer I have so often told you about, "Lord, help," at the same time keep saying, "Get thee behind me, Satan." The sin of idleness will also bring these very doubts, as I know by personal experience. The true Christian has too many responsibilities pressing on him to waste a moment. May the Lord bless these words to every reader of GLEANINGS who has speculated within his own heart as to whether or not he is a Christian. When I am busy, and when I am cherishing no thoughts of sin in any shape or form, then is my faith brightest, and at such times I am always ready to say, with faith and happi-

ness, the words that I started out with, "I know that my Redeemer liveth."

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, MAY 15, 1889.

Not to be ministered unto, but to minister. MARK 10: 45.

In another column will be found some testimonials in favor of the new Dovetailed hive and its combinations. Not one word of complaint has yet been received from our customers so far.

GLEANINGS ENLARGED.

You will notice that not only the last issue, but the present one, has been enlarged to 52 pages, or 16 pages larger than usual. With the great lot of good matter awaiting insertion, we felt obliged to enlarge GLEANINGS, at least temporarily. What troubles us now is that, even with its present enlargement, there is still a great deal of valuable matter still unused; and, worse still, it may never be used. As we have said before, it is not always the best matter that finds its way into GLEANINGS print. We have on hand several communications in type, and one or two have been waiting for a considerable time in this shape.

QUEEN-REARING IN FULL COLONIES ALREADY HAVING A REIGNING QUEEN.

The *American Apiculturist* for May contains a supplement of 8 pages, the special feature of which is the rearing of queens in full colonies, without depriving the bees of their queen. This result is accomplished by inducing the swarming impulse artificially. It is a well-known fact, that bees will rear cells when possessed of a reigning queen, during the swarming season. In order to make them build cells at other times, friend Alley produces the result artificially by feeding, and bringing the colony into a condition of unusual prosperity. It rather strikes us that the process would be more work than depriving the colony of the queen; but possibly he secures better queens. For full particulars, you are referred to H. Alley, Wenham, Mass.

A CAUTION TO MAMMAS AND PAPAS.

I THINK the following deserves a place as a warning:

Our little four-year-old boy, Harry Huber (named after your own little boy and the blind naturalist), had gone with his mother, sister, and two older brothers, on a visit to "grand-pa's" April 4th. The boys had gone down on the hillside, not far from the house, to play and hunt rabbits as they said. The woods had been burned the night before, and in playing around an old log that was still burning, Harry's dress caught fire and burned off before help could reach him. I was summoned by telegraph; but when I arrived his spirit had departed, and the bright blue eyes and rosy cheeks of my little bee-keeper were patched and charred in death. S. S. LAWING, Henderson, Mo., May 9, 1889.

May the Lord sustain you and your poor afflicted wife, friend L. Perhaps it is not possible to avoid such accidents entirely; but it is well for parents

to bear in mind, when the children are playing out of sight, where there may be fire about, that such things are happening every little while. It seems a terrible thing indeed for such a little one, who did not know what to do, or the danger he was in to suffer in that way. Our children are very fond of playing with fire; and their mamma frequently allows them to do so when they have on woolen clothing that can not very readily burn, and are located where there is nothing to take fire; but even then she keeps a careful eye over them. May be your warning may save the loved ones in some other household, dear friends; and we hope and trust that you are looking to the only solid Rock that can give comfort and consolation during a trial like this.

ENCOURAGING FOR CALIFORNIA.

The following has come to hand from a large commission house in San Diego, Cal. They say:

We estimate the honey crop of San Diego County this year at from one and a half to two million pounds, provided every thing remains as favorable through the rest of the season as it has been up to the present time. LACEY, BAILHACHE & Co.
San Diego, Cal., May 7, 1889.

HONEY STATISTICS FOR JUNE 1ST.

SOME inquiries have come in, asking whether we are going to stop our department of Honey Statistics. Not a bit of it. Blanks have already been sent out, and the statistical reports will be published in our issue for June 1. So far the prospects indicated by the reports are very flattering, and success in wintering has been exceptionally good. We hope that this will jog the memory of those who have so far failed to send in their blanks filled out.

THE WESTERN APIARIAN.

THE above is the title of a new 20-page monthly bee-journal, to enter upon its apicultural career June 1. The size of the pages is to be 6 x 9, and the price is to be 50 cts. per annum. The publishers, Watkins & McCallum, of Placerville, Cal., think that an appropriate time has arrived for the publication of a magazine devoted to bee culture in the Pacific and Western States. As California is the greatest bee-country in the world, it doubtless will be represented by a good live bee-journal. We wish it success.

DOOLITTLE ON QUEEN-REARING.

A NEAT little work of 160 pages, bearing the above title, fresh from the publishers' hands, Messrs. T. G. Newman & Son, has just come to hand. The work is well printed, and, as usual, comes up to the standard of Messrs. Newman's publications. In chapter 3, friend Doolittle discusses nature's ways versus man's ways. We must confess we fail to see wherein the author proves that the swarming queens are better than queens produced by a skilled breeder, when the cells are reared in full colonies. Doolittle may be right; but when "artificial" queens, as he would call them, will give from three to four years of good service, keeping a colony populous and well supplied with brood, we can hardly see what more can be desired. Doolittle says that, when bees are not tampered with by man, they produce queens by only one of two ways; namely, queens produced under the swarming impulse, and queens produced when bees supersede their queen naturally—the old queen having served her best days; but friend Doolittle deviates considerably from nature when he makes artificial cells, fills them with royal jelly, and final-

ly deposits therein an egg or larva. We do not deny but that first-class queens and good queens can be produced in this way; but is it altogether in accordance with nature's way?

Do we not sometimes make a mistake when, in speaking of "nature's way," we leave out of our calculations the human mind? True, no co-operation of the human mind with nature could produce a better snowflake or sunbeam than we get directly from above; but can not the human mind produce more marvelous results with the sunbeam than were ever produced by natural laws without human aid?

Allusion is made above to Doolittle's artificial cells. Chapter 7 (around which all the rest seem to center) discusses the new method of rearing queens, and how these cells may be made artificially. On page 50 is a nice engraving representing a lamp, above which is a small tin vat for holding melted wax. Beside the lamp is a cup of water. Three little sticks of wood (old rake teeth), are lying upon a little block of wood. These teeth are taken from a common bay-rake, the teeth being whittled and sandpapered so as to be as near the shape of the inside of the queen-cell as possible. Three of these sticks are dipped successively into a little of the melted wax, above the lamp. The film is cooled in the cup of water, and is then dipped again. The operation is repeated a number of times until the cell of wax has the proper thickness, when it is slipped off from the end of the rake-tooth, and more cells are made in like manner. After a sufficient number have been made, the end of the cell, or the end opposite from which the queen hatches, is stuck on to a little strip of wood by means of melted wax. After a dozen cells are fixed, this strip of wood is fastened horizontally into an old comb, the space below the strip being cut out so as to allow plenty of room for the cells. On page 56 is a nice engraving showing the cells when fully capped over by the bees. For full particulars, as also a discussion of many important matters connected with queen-rearing, we will refer you to the work itself. The book is full of valuable hints, and will be worth all it costs to any queen-breeder. Price \$1.00 by mail; 6 cents less if sent with other goods by express or freight. It can be sent from this office.

SPECIAL NOTICES.

SWEET-POTATO PLANTS.

Our sweet-potato bed has turned out so much better than we expected, that, aside from supplying our local demand, we shall have several thousand to send off by mail or express. Prices will be the same as our cabbage and celery plants; namely, 5 cts. for 10; 40 cts. for 100, or \$3.00 per 1000. If wanted by mail, add 5 cts. additional for 10 plants, or 25 cts. for 100. For list of all the plants and strawberries we now have ready for shipment, send for our seed and plant catalogue for May.

GERMAN-SILVER THIMBLES.

Perhaps many of you have noticed the very high praise we give our five-cent German-silver thimble in our price list. Well, when I was away in California our clerks got out of certain sizes, and lost the record of where they were to be purchased. But to keep business going they bought some of somebody else that looked a good deal nicer, until—the wash wore off! As a consequence quite a few of our good friends have received brass thimbles, when they paid for and had a right to expect an extra-nice German-silver one. Some of the clerks suggested that it was only a "five-cent deal, any

way;" but I tell you, a five-cent deal ought to be as straight and square as a deal of \$5000. Yes, they had worse work than selling brass for German silver. Our "boss of the counter store" (Eliza as we called her) went and got married last fall; and after that, things got sort o' mixed, and one or two, at least, got brass thimbles in place of coin silver. By way of apology for the blunder, it was urged that the brass ones, when *brand new*, were really handsomer than the silver ones. There is one thing that pleases me, however, in the above: Not one of the friends, so far as I can remember, accused us of purposely sending out a brass thimble; at least, all have been polite enough to suggest that somebody had made a blunder somewhere, when the outside came to be worn off. Well, what I wanted to say is, that we have got a splendid stock of all sorts and sizes, closed end and open end, even the big ones, of genuine first-class German silver, the very best that can be found, and they are only 5 cents apiece. If wanted by mail, add 2 cts. extra for postage and packing.

KIND WORDS FROM OUR CUSTOMERS.

Smokers received. I like the large blast-tube very much. J. GREGG.
Visalia, Cal., May 7, 1889.

The 10 Dovetailed hives that I ordered of you are at hand. I have put a part of them together. I am pleased with them. R. BOSTWICK.
Redding, Cal., April 19, 1889.

THE DOVETAILED HIVE LONG WANTED.

I am more than pleased with the Dovetailed hive. It is the hive I long have wanted, and in the future I shall use only that. F. P. STRAGER.
Bremen, O., Apr. 8, 1889.

THE DOVETAILED HIVE EASY TO PUT TOGETHER.

The Dovetailed hives came to-day. They are so simple I can put them together easily, although I am not a carpenter. Your new A B C book is splendid. B. J. THOMPSON.
Waverly, Wis., Apr. 26, 1889.

COULD NOT BETTER THE DOVETAILED HIVE.

I think you could not better the Dovetailed hive, especially the surplus arrangement, which will save much time and labor in handling and cleaning boxes. The lawn-mower is a first-class machine; it does excellent work, and much cheaper than I could have purchased one here for.

Brink Hill, Pa., May 13, 1889. O. S. ROGERS.

WHAT C. C. MILLER SAYS OF THE WORKMANSHIP OF THE DOVETAILED HIVE.

I have received and carefully inspected the Dovetailed hive; and if it is a fair specimen of the work you will send out, then the Dovetailed hive is a real acquisition. It does me good, just to look at it—so close and exact—no chance to get together any way but the right way. C. C. MILLER.

Marengo, Ill., May 1, 1889.

THE DOVETAILED HIVE THE NEAREST TO PERFECTION; A SUGGESTION.

Eureka! The Dovetailed hive is the nearest to perfection you have struck, including fixtures. Now make the brood apartment the same size as section cases, with open-top section-holders, and you will have every part the same size, and interchangeable. Bees work as well and winter better in a double brood-chamber than in a single chamber with solid comb full depth. The passageway of $\frac{3}{4}$ inch in the middle of the brood-nest is apparently just what the colony needs to shift about without going around outside. My bees came out stronger and better in spring in double brood-chambers than in single, wintered chaff packed out of doors. The double brood-chamber makes a large hive to breed up in in the spring, and can be retained its full size if large brood hives are preferred. Try the *Uniform* hive, and I am sure you will find it more simple than the *Simplicity*, and better than the best. E. E. EWING.

Rising Sun, Md.

The hive material and other goods came in nice order. I was never better pleased with hive material. Mrs. W. says that the tinware and the molding-board beat anything she ever knew of for the money. J. C. WHEELER.

Plano, Ill., Apr. 29, 1889.

We think the carpet-sweeper very nice. My wife says she is almost sorry (not quite) that we got it; for now when she is sewing she will have no excuse for leaving little bits of clippings around on the carpet, they are so easily picked up with the sweeper. JOHN LANGLEY.

Widnoon, Pa., April 25, 1889.

The Waterbury watch you sent in place of the one I told you would not run, I received. I would have sent back the first one; but since I wrote it runs all right. I have two now, and both run very well. I don't know which one to send back, and so I think I will keep both of them. C. HOFMANN.
Harrisburg, Ark.

Brother Root:—I call you brother, as I am trying to serve the same Lord and Master. I can not tell you how much your sermons have helped me the past year, and I hope and pray that you may be spared to continue doing good. L. L. HOWE.
Harrisville, N. H.

Friend Root:—I most heartily agree with you in your concluding sentence in "Myself and Neighbors," for April 15th. May your God-inspired papers be instrumental in bringing hundreds—yes, thousands—to God's heavenly throne, is my earnest and prayerful wish. W. M. BARNUM.
Angelica, N. Y., April 23, 1889.

About five years ago I saw one of your advertisements in some paper I now forget, which induced me to raise bees, and to this day I have had no reason to regret the step, not only on account of the bees that afford me pleasure as well as profit, but principally because I was induced to have dealings with a man strictly honest, who wishes to be measured to by the same measure he gives to others. I would not hesitate to pay \$1.00 out of my pocket for GLEANINGS, when I sometimes read one article worth the price. I always read GLEANINGS from first to last, though I take five other papers, and have my hands full besides. W. W. JONES.
Hubbardston, Vt., April 21, 1889.

GOD'S WORK AND MAN'S WORK.

That 28 cents my due, you may apply on my renewal, if you please. I had forgotten it. Now, brother Root, I believe God made you an honest man, and I will tell you when I think he did it. I think somewhere about 43 years ago.

Mulliken, Mich., Feb. 15, 1889. H. M. BROWN.

[Friend B., God made us all honest. There is certainly no fault on his part. The dishonesty comes because we resist not, but give way to selfish impulses. I was vividly reminded of this yesterday when mamma had a long pull with our six-year-old Huber. He did not want to go to church nor to Sunday-school. Mamma pulled him through, however, and after Sunday-school was over he came up to me saying, "Papa, I am awful glad I was a good boy, and went to Sunday-school. I feel ever so much better now."]]

WHAT AN ADVERTISEMENT IN GLEANINGS WILL DO SOMETIMES.

I just got myself in business when I put that advertisement in GLEANINGS. Letters come from all directions. Some come personally to see me, and I think I shall have no trouble in finding the right man; and, by the way, they were nearly all Christians, and temperate, and anti-tobacco. Bro. Root, I think your readers are the best crowd I ever came across. I see now how much I have missed by dropping out of their company.

GEO. M. KELLOGG.

Pleasant Hill, Mo., March 13, 1889.

[Thanks for the compliment you pay us all, friend K. I have sometimes wondered if it were not true that godly and temperate people were rallying around GLEANINGS. If so, then we, perhaps, in our separate neighborhoods, may be the means of influencing a good many, who are standing undecided by the way, to turn the scale in the right direction.]]

FRIEND JONES'S IGNOTUM TOMATO SEEDS, AND HIS MISHAP.

I received those tomato seeds (Ignotum) planted them in a large pan, and about 20 came up and were growing nicely. I set the pan in the sun on the banister of the porch; after a while, along came a Brown Leghorn hen and concluded to make an examination, and the result was she upset the pan and left me floundering with blasted hopes. Now, you see I am like the calculating milkmaid—visions of delicious tomatoes sliced in vinegar made my mouth water; but now—*mirabile dictu!* I am undone.

REV. L. S. JONES.

Sonora, O., April 15th, 1889.

[Friend J., here is another paper; and as the Ignotum ripens quite early—at least a part of them—I think you may have some tomatoes sliced in vinegar after all, and from your own vines.]

ADVERTISING IN GLEANINGS.

My bees wintered well; I lost 3 colonies out of 75; some, however, were not very strong; and as I work chiefly for comb honey I concluded to unite until I had disposed of my mismated queens (as I wish to have none but purely mated). Thinking it more prudent to sell cheap than to kill them, I had an advertisement inserted in Apr. 1st GLEANINGS. To my surprise, orders came in so rapidly that I could not half fill them all. I knew not what to do but to refund the money. I feel sorry about it, knowing that many of the friends were anxiously awaiting their queen, when, lo! their letter comes in her place. If any who ordered a queen of me did not receive her or the money in her stead, they will please let me know, and I will correct all mistakes. Some had written their address so poorly that I am not sure that I addressed them correctly each time. I make it a rule to fill an order for a queen as soon as I receive it, but as I live a distance from the postoffice I do not get my mail daily; so those who must have a queen "at once" had better not order of me.

L. A. RESSLER.

Nappanee, Ind.

THE SIMPLICITY NOT SIMPLE AFTER ALL.

We have built the largest tunnels on the Cincinnati Southern Railway; have run sawmill after sawmill, cleaned clocks, watches, etc., too numerous to mention, and were always successful; and now in old age we must admit that a Simplicity bee-hive is too much for us; therefore find inclosed \$3.00, for which send me a No. 5 two-story Simp. hive complete, put up, ready for use, to use as a pattern to enable us to use the stuff on hand. I also inclose 70 cts. for two iron gauge-frames, for hive-making. Please send an *exact* copy of those you shipped us, ready for the bees, inside and out. We are greenhorns in the business, therefore please excuse our apparent ignorance. We can't help it. God made us just that way.

Robbins, Tenn.

MRS. E. B. ROBBINS.

[Why, my good friend, do women build tunnels and sawmills, and clean clocks and watches, down your way? or do you mean that you and your good husband are so emphatically one that whatsoever work he is engaged in you know all about? That is just the sort of union that I believe in. I think, however, you will smile when you see a Simplicity hive made up, and see how extremely simple it is.]

OUR GARDEN-SEEDS, ETC.

The seeds came duly to hand, but what packets! eight or ten times as much as we get in the store. I never knew seeds to come so quickly. The beets were up in nine days. I got some of —'s seeds. A packet of early cabbage proved to be four or five different sorts. All came up badly, some not at all. I am sorry to say that the birds took all my white lettuce, my first sowing of Grand Rapids lettuce, all my Ignotum tomatoes but three, and several plantings of beets. They came on to the window-sill to get them. They take every thing as fast as it comes up.

The particulars of your journey to California were very interesting. I worked on the bridges, etc., along those rock cuts on the Rio Grande. I wish I had known, when you were going through San Antonio. I should have been pleased to meet you.

GEO. E. HAILES.

Lytle, Texas, April 4, 1889.

[Several have made mention of the large amount of seeds we give for 5 cents. We try to put them

up in the way the shoemaker charged for mending my boot. We charge about what we should like to have other folks charge us. We are pretty sure that our seeds will all grow, because we are constantly planting them—yes, a great many of them, every month in the year, and we think they are pretty true to name.]

NON-SWARMERS.

I have a nice lot of these fine queens now for \$1.00 each. Safe arrival guaranteed; also satisfaction given in size and color. With me the old queen and her progeny positively refuse to swarm under the most favorable circumstances.

R. B. WILLIAMS,

Winchester, Franklin Co., Tenn.

[In responding to this advertisement mention GLEANINGS.

1000 LBS. OF ITALIAN BEES FOR SALE AT 75 CENTS PER LB.
Three-frame nuclei, with tested Italian queen, \$3.00 each. Tested Italian queens, \$1 each. Untested, 75 cts. each or three for \$2.
10tfdb

I. R. GOOD, Nappanee, Ind.

LOOK HERE!

STRONG THREE-FRAME NUCLEI, WITH QUEEN FROM IMPORTED ITALIAN MOTHER, FOR \$2.50.

Safe arrival and satisfaction guaranteed.

Address G. W. GILLET, WELLINGTON, OHIO,

10-11-12d or M. W. SHEPHERD, ROCHESTER, OHIO.

[In responding to this advertisement mention GLEANINGS.

Gift! Gift! Gift!

To every purchaser of one tested yellow Italian queen, in June and after, for \$1.50, I will give one L. frame nucleus, 50 cts., for each added frame of brood and bees. Tested queens, \$1.25; untested, \$1.00. Send for price list.

MRS. OLIVER COLE,
Sherburne, Chen. Co., N. Y.
Chenango Valley Apiary. 10tfdb

[In responding to this advertisement mention GLEANINGS.

LEARN TO WRITE YOUR OWN NAME WELL by sending 20 cts. to F. A. WOOTTON, Penman, Skilesville, Ky., for 12 beautiful cards with your name finely written in different combinations. Various styles of cards, alphabets, etc., fresh from the pen. Best references. 10-11d

100 COLONIES OF ITALIAN^{and} HYBRID BEES FOR SALE

All strong and healthy; also Japanese buckwheat. Write for our low prices.

A. J. & E. HATFIELD, South Bend, Ind.

THE A B C OF

CARP CULTURE

A COMPLETE TREATISE

Upon the Food Carp and its Culture.

INCLUDING PLANS AND SPECIFICATIONS, AND FULLEST INSTRUCTIONS FOR THE CONSTRUCTION OF PONDS, AND EVERY THING PERTAINING TO THE BUSINESS OF RAISING CARP FOR FOOD.

Illustrated by Many Fine Engravings.

By A. I. Root and George Finley.

PRICE: 35 Cts.; by Mail, 40 Cts.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation.
21tdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
OTTO KLEINOW,
41tdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange a magic lantern, 12 views, cost \$12, for a watch. 9-10d
E. B. HUGHES, Pipestem, Summers Co., W. Va.

WANTED.—To exchange Japanese buckwheat and P. Rock eggs, and Barnes improved circular saw, for bees by the pound, young queens, and reliable strawberry plants. H. O. McELHANY,
9-12db Cedar Rapids, Ia

WANTED.—To exchange 400 brood-combs in L frames, and 300 combs in half L frames (half depth), valued at 10 cts. each.
9d MISS DELLY REYNOLDS, Sonora, Ky.

WANTED.—To exchange farm stock, and tools, or trade, for Southern or Western property.
10d OSCAR W. JEFFERSON,
Acme, Grand Traverse Co., Mich.

WANTED.—To exchange untested Italian queens, reared from select queens, under swarming impulse, for Wyandotte or Golden Pheasant eggs.
10d G. F. TYLER, Honey Grove, Tex.

WANTED.—To exchange my price list of Italian bees and queens for your address on a postal card.
10tdb R. W. TURNER,
Medina, Ohio.

WANTED.—To exchange bright yellow Italian queens for comb foundation. For further particulars address
10d JAMES F. WOOD,
North Prescott, Mass.

WANTED.—To exchange V-groove sections for empty combs. J. B. MURRAY, Ada, Hard. Co., O.

WANTED.—To sell or exchange 25 L hives, 10 frame, with good combs; only 20 have top-story; 1200 sections in flat; 50 T supers, for cash, honey, or best offer inside 30 days. E. A. EASTMAN,
10d Birnamwood, Shawano Co., Wis.

WANTED.—To exchange one single barrel breech-loading shot-gun, 12 bore, hammerless, cost new, \$14 00; 200 brood-frames in flat, all wood, 30 T supers in flat, one solar wax extractor, one 96 in. roll perforated zinc, 10 zinc honey-boards, for offers of bees by the pound, with and without queens, or any thing useful
10tdb C. L. HILL, Dennison, Tusc. Co., Ohio.

Black and Hybrid Queens For Sale.

About one dozen black and hybrid queens for sale, at 30 cts. apiece. E. R. MILLER,
Garden City, Cass Co., Mo.

FOR SALE.—Another lot of those hybrid queens, one year old, good layers, at 50 cts. each, in Peet pages, at sender's risk.

H. L. FISHER, Milford, Kosciusko Co., Ind.

TESTED ITALIAN QUEENS, \$2.00.
UNTESTED, AFTER JUNE 1, \$1.00.
PRICE LIST FREE. R. W. TURNER, Medina, O.

Price of Sections Reduced.

I will sell No. 1 white basswood V-groove sections at \$3.00 per M. No. 2, \$2.00 per M. Price list free.

J. M. KINZIE,
10-14db Rochester, Oakland Co., Mich.

In responding to this advertisement mention GLEANINGS.

FOR SALE CHEAP.

200 LANGSTROTH and SIMPLICITY HIVES, some new and in the flat; a lot of empty comb, a Novice extractor, and other bee-fixtures, which I will sell cheap. Write for particulars. Reasons for selling, I am out of the business.

10d W. J. FRANCISCO, Marshall, Mich.
In responding to this advertisement mention GLEANINGS.

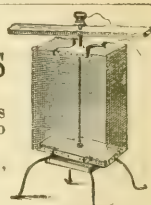
A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.



**MELCHER'S
IMPROVED
EXTRACTORS
FOR \$2.50.**

Territorial rights
for sale very cheap
Address

J. C. MELCHER,
O'QUINN, TEX.
4-10db



In responding to this advertisement mention GLEANINGS.

JAPANESE + BUCKWHEAT.



At the present time, the new Japanese buckwheat is by all odds further in advance than all other kinds. This is the third season that it has been before the public; and the reports to the agricultural press and bee-journals place it far ahead of the silverhull, gray, or common. The grain is larger in size, and it gives a very much larger yield of grain. It is fully equal in quality of flour to any of our old kinds, and very much ahead of them in quantity. The reports for honey are somewhat conflicting, but I believe it yields fully as much honey as any other buckwheat known. The price of the Japanese is as follows: Per bushel, \$2.00; 1/4 bush, \$1.25; per peck, 75c; 1 lb., 10c. If wanted by mail, add 9c for postage.

In lots of 5 bushels or more, \$1.75 per bush. Our seed is going rapidly. Would advise you to order early before we are sold out. See reports in another part of this issue.

A. I. ROOT, Medina, Ohio.

UNTIL FURTHER NOTICE.

Select tested Italian queens, \$1.00. Standard breeding queens, \$2.00. Imported, fine and prolific, \$6.00.

**R. H. CAMPBELL,
Madison, Morgan Co., Ga.**

In responding to this advertisement mention GLEANINGS.

5 LBS. of bees, in one lot, \$4.00; 4 lbs., \$3.25. Add price of queen, if one is wanted. See ad. in this number.
**MISS A. M. TAYLOR,
Box 77, Mulberry Grove, Bond Co., Ill.**

QUEENS BY RETURN MAIL.

Tested Queens, \$1.25; - Untested, \$1.00.
10tfdb **I. GOOD, SPARTA, WHITE CO., TENNESSEE.**

Glass Honey Tumblers and Pails.



Glass Tumbler. Nos. 788 and 789.
Screw-top Pail. Nos. 775 to 778.

Oaken Bucket Pail.

Above we present our three staple styles of glass honey-packages for this season. We are unable to get any more of the screw-top glass pails, shown in our catalogue, such as we have been selling for a number of years, and we have substituted in its place the one shown in the center above. We have this made specially for our trade, and no one else handles it. The following revised table of prices takes the place of those in our catalogue. Please notice important changes, and please be careful to be specific in telling what you want when you order. Give the quantity, number, name, and price, to avoid mistakes.

TABLE OF PRICES—NO CHARGE FOR PACKAGES.

Please order by number and name, and give price.

	Number and Name.	Capacity.	Price.	Barrels.
No. 788, 1/2-lb. tumbler	10 oz.	3	28	2.50 250 85.30
No. 789, one-pound tumbler	16 oz.	3	30	3.00 200 5.20
Nos. 788 and 789, nested		6	57	5.25 200 9.00
No. 775, 1/2-lb. screw-top glass pail	11 oz.	5	40	3.50 250 7.30
No. 776, small pound screw-top pail	14 oz.	5	42	3.75 200 6.60
No. 777, large pound screw-top pail	17 oz.	6	52	4.75 150 6.60
No. 778, 1 1/2-lb. screw-top glass pail	24 oz.	7	65	6.00 100 6.00
1-lb. Oaken Bucket pail	10 oz.	5	42	3.75 200 6.60
1-lb. Oaken Bucket pail	16 oz.	5	45	4.30 150 6.10

In lot of 5 barrels, any one or assorted kinds, 5% discount. Please notice these points in the table above.

1. The capacity as given is what each will hold, well filled with honey of good consistency.

2. The price of one, 10, and 100 is given in the first three columns; the fourth column gives the number in a barrel, and the 5th column the price of a barrel.

3. Notice that it is much the most economical to buy them in barrel lots, if you can use so many. The reason for this is, that all manufactures of glassware have a uniform charge for packages, and a barrel has the largest capacity for the price of any thing used. Every barrel, large or small, costs us 35 cts; a box, holding only half as much, costs the same. Thus by taking the largest barrels, well filled, we can give you the most value for the money.

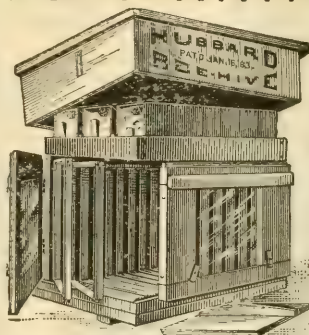
4. We can not break packages of 100 or barrels at the price of a full package.

5. The most skilled packers are employed, and goods are delivered to transportation companies in good order; we will not, therefore, be responsible for any breakage.

Send your orders early, while we have plenty of stock and can maintain above prices.

A. I. ROOT, Medina, O.

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.

**K. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.**

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.
For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied.
Mention GLEANINGS. 7-12db

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4 1/4 x 1 1/4 sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

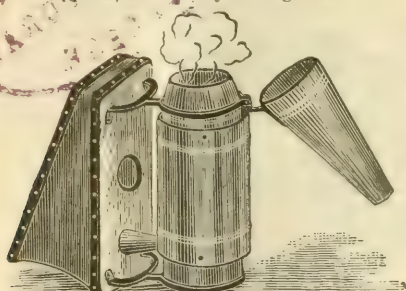
3tfdb

**CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.**

In responding to this advertisement mention GLEANINGS.

1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. Clark's illustrated price list. He is rock bottom for all supplies, and don't you forget it.



W. E. Clark's Improved Hinge-Nozzle Quinby Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York
3-14db

☞ Mention Gleanings.

Minnesota Ahead!

We are selling L. hives with T supers for 55c., and brood-frames for \$1.00 per hundred. Send for circular before ordering elsewhere. 7-10db

WM. H. BRIGHT, Mazeppa, Minn.

VIRGIN QUEENS.

The bulk of the traffic in queens in the near future will probably be in "Virgins." Every person sending direct to the office of the *Canadian Bee Journal* one dollar for one year's subscription (either renewal or new), in advance, will receive a beautiful virgin queen (value 60 cents), as soon as possible, in the season of 1889. Queens will be sent in the same rotation as each is received. American currency, stamps, and money orders received at par. THE D. A. JONES CO., BEETON, ONTARIO, CAN.

☞ In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS.

Tested, \$2.00, \$1.50, and \$1.25, in Apr., May and June. One untested, May, \$1.00; after June 1st, .75.

Three untested, May, \$2.50; after June 1st, \$2.00.

Three-frame nuclei, with untested queen, May, \$3.50; June, \$3.00; after, \$2.60; with tested queen, add 50 cts. For prices of 2-frame nuclei bees, per lb. and ½ lb., full colonies, foundation, and bee-keepers' supplies, write for price list. Address 6-11db JNO. NEBEL & SON, High Hill, Mo.

☞ In responding to this advertisement mention GLEANINGS.

No. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50 Knife,
No. 4, 1.25; No. 5, 1.00; No. 6, .65 \$1.15

On receipt of the above price

SMOKERS and KNIVES

will be sent postpaid. Descriptive circulars will be sent on receipt of request card.

Bingham & Hetherington Smokers and Knives are staple tools, and have been used ten years without complaint, and are the only stovewood-burning clear-smoke bee-smokers; no going out, no vexation. Address

BINGHAM & HETHERINGTON, Abronja, Mich.

Please mention GLEANINGS.

6tfdb

SECTIONS and FOUNDATION CHEAPER THAN EVER.

Sections Only \$3. Dealers write for special prices. Free samples and price list. 1-12db

(Near Detroit.) M. H. HUNT, BELL BRANCH, MICH.

☞ In responding to this advertisement mention GLEANINGS.

EARLY Untested Italian Queens, 75c. each.
8tfdb YOUNG G. LEE, Charlotte Harbor, Fla.

Apr. 1. For 60 Days. 1889.

We have on hand a large stock of one-piece sections, which are first class. To reduce stock we will name very low prices for the next 60 days, in any size lots from 1000 to 100,000 or more. Save money by letting us know what you want. Other supplies to correspond in price. Price list free.

7tfdb

SMITH & SMITH,

Mention Gleanings.

Kenton, Hardin Co., O.

If You Want Full value for your money you should see my catalogue before purchasing. Japanese buckwheat, \$1.75 per bushel; 20 varieties of potatoes. Bees, queens, and supplies at low rates. CHAS. D. DUVAL, 7tfdb Spencerville, Mont. Co., Md.

☞ In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75

PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO.,

3tfdb

ROCK FALLS, ILLINOIS.

☞ In responding to this advertisement mention GLEANINGS.

Italian Bees and Queens for Sale

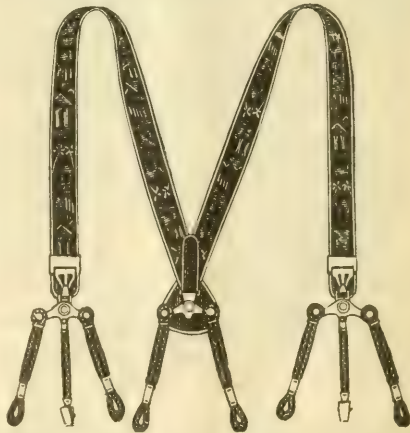
Wishing to reduce my stock of bees, I offer 50 colonies of fine Italian bees at the following extremely low rates: Full strong colonies on L. frames, put up in light shipping-boxes, f. o. b. at my station, \$5.00 per colony. Tested queens, \$1.25 each. Satisfaction guaranteed.

8-11db

A. C. BRUSH,
Susquehanna, Sus. Co., Pa.

☞ In responding to this advertisement mention GLEANINGS.

SUSPENSERS FOR BEE-KEEPERS.



A number of customers have requested us to get a good suspender for bee-keepers, and a number of kinds have been suggested. The one shown above, called the "Foster," suits us as well as any we have seen. If you notice carefully you will see that, by the use of eveners, or equalizers, the strain on each button is the same. We can furnish them made of good white elastic web cotton ends, at 35 cts. per pair; silk ends, 50 cts. By mail, postpaid, 5 cts. per pair extra. In ordering please call them the "Foster." We can furnish very good white elastic suspenders, without the eveners, at 25 cts. per pair; by mail, 5c extra. Adjustable elastic armlets, 10c per pair, postpaid. A. I. ROOT, MEDINA, OHIO.

P. S.—Have just received some suspenders to sell for 10c that have never been sold before for less than 15c. Elastic web throughout; only 10c; by mail, 14c.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	to Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75
Tested.....	3 00	2 75	1 75	1 50
Untested.....		1 25	1 00	1 00
6 Untested.....		5 50	5 00	4 50
12 Untested.....		9 50	9 00	8 50

Contracts taken with dealers to furnish queens by the week at special rates. Address

5-21db **J. P. CALDWELL, San Marcos, Tex.**

In responding to this advertisement mention GLEANINGS.

FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars. **DR. A. B. MASON,**
9-14db **Auburndale, Ohio.**

THE EASIEST WAY TO GET YOUR CHAFF HIVES,

Is to sell a few for me to your neighbors, and make profit enough to buy your own. Write for terms at once.

3tfdb **J. A. ROE, Union City, Ind.**

In responding to this advertisement mention GLEANINGS.

HOLY-LAND QUEENS

A SPECIALTY.

BEES BY THE POUND, IN A L. FRAME.

BEE-KEEPERS' SUPPLIES.

GEO. D. RAUDENBUSH, 445 CHESTNUT ST., READING, PA.

Mention GLEANINGS.

9-10-11d

WANTED! At Plattsmouth, Nebraska, to Sell 3-Frame Nucleus Colonies Italian Bees with Queens, at \$2.50 Each.

9tfdb **J. M. YOUNG, Box 874, Plattsmouth, Neb.**

THE BRICHEST FOUR-BANDED GOLDEN ITALIAN BEES AND QUEENS, AND THE REDDEST DRONES.

Price, select tested, \$3.00; tested, \$2.00. Untested, in May, \$1.25; June and after, \$1.00.

9-12db **L. L. HEARN, Frenchville, W. Va.**

In responding to this advertisement mention GLEANINGS.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION.
See advertisement in another column.



**Eaton's Improved
SECTION CASE.**

BEES AND QUEENS. Send for free catalogue. Address

FRANK A. EATON,

5-16db **Bluffton, Ohio.**

In responding to this advertisement mention GLEANINGS.

THOROUGHbred White P. Rock, W. Wyandotte eggs, \$1.50 per 13; L. Brahma, P. Rock, L. Wyandotte, W. and B. Leghorn eggs, \$1.00 per 13. **Italian Queens**, reared on the Doolittle plan, select tested, in May, \$3.00; June, \$2.50. Warranted, May, \$1.25; June, \$1.00.

C. H. WATSON,

7-12db **Newtown, Bucks Co., Pa.**

I WILL SELL FULL COLONIES OF BEES, IN eight-frame Langstroth hives, at \$4.00 per colony, in lots of five or more.

9-10d **H. C. GILSON, Burr Oak, Mich.**

100 TONS OF COMB HONEY

Will undoubtedly be put on the market this season in our

FOLDING PAPER BOXES.

Send for catalogue, 20 pages, free. Sample box for our prices defy competition.

9-20db **A. O. CRAWFORD, S. WEYMOUTH, MASS.**

In responding to this advertisement mention GLEANINGS.

EGGS FOR HATCHING. P. Rock, Light Brahma, R. C. B. Leghorn, P. Duck, \$1.25 per nest; two settings, \$2.00. W. P. Rock, \$1.50 per 13. Choice pure-bred stock. Circular free. **S. P. YODER, E. Lewistown, Mahoning Co., Ohio.**

Rearing Queens in Colonies

having laying queens. Send your address on a postal card. Circular free.

8-10d **H. ALLEY, Wenham, Mass.**

HOW TO MANAGE BEES; OR, BEE-KEEPING FOR THE "MASSES."

Every farmer, and all beginners in bee-keeping, as well as those more advanced, should have it, as it is especially adapted to their wants. Fully up to date. Price \$1.00, by mail. In beautiful paper covers. Illustrated. Address

8-6d **W. S. VANDRUFF, Waynesburg, Pa.**

In responding to this advertisement mention GLEANINGS.

BEE HAT AND VEILS.



Most people who handle bees wear some kind of a veil, or bee-hat, as some call 'em. Above we show the rig we prefer. The hat is one we have sold and recommended for two years, and have used for five or six. It is a light cloth hat, weighing only 1 oz.; fits any head, the inside rim having a rubber cord in it. The outside rim is held out in place by a spring wire.

We make veils of four different qualities.

No. 1 is our best veil, made of grenadine and silk brussels net, or tulle face.

No. 2 is the same without the tulle face, being all of grenadine.

No. 3 is made of mosquito bar, with tulle face.

No. 4 is made of mosquito bar, without the tulle face.

	Price—	each.	10.	100.
No. 1. Best veil.....	\$	75	\$6 00	\$55 00
No. 2. Grenadine veil		60	4 75	45 00
No. 3. Tulle-face bar..		40	3 20	30 00
No. 4. Mosquito bar..		25	2 00	18 00
Bee-hat		20	1 60	15 00

Sent postpaid, or with other goods, on receipt of price. Our veils are larger and more roomy than those of other makes that we have seen. They have a rubber cord in the top, to draw them tight around the hat, as shown in cut. The lower edge is bound with a blue ribbon, and is drawn under the suspenders, as shown. The grenadine veils will wear much longer than mosquito-bar.

A. I. ROOT, Medina, Ohio.

CARNIOLAN QUEENS.

Now booking orders for June. Tested, \$4.00; untested, \$1.00, or \$5.00 per ½ doz.

SEND POSTAL FOR CIRCULAR.

9-10d **S. W. MORRISON, M. D., Oxford, Pa.**

1¢ In responding to this advertisement mention GLEANINGS.

1889. 19th Year in Queen-Rearing. 1889.

ITALIAN QUEEN-BEES.

Tested queen, in April, May, and June.....\$1 50
Untested.....80

Sent by mail and safe arrival guaranteed. Also nuclei and full colonies. Eggs of Pekin ducks—White and Brown Leghorns, and White-crested Black Polish chicks, \$1.50 per dozen. Address

W. P. HENDERSON,

5tfdb **Murfreesboro, Tenn.**

1¢ In responding to this advertisement mention GLEANINGS.

IF YOU ARE IN WANT OF**BEES or BEE-KEEPERS' SUPPLIES,**

Send for our New Catalogue.

OLIVER HOOVER & CO.,

4tfdb **Snydertown, Pa.**

1¢ In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS' SUPPLIES**SAVE FREIGHT.****BUY YOUR SUPPLIES NEAR HOME.**

Shipping facilities good. Send for price list of every thing needed in the apiary. 7tfdb

C. P. BISH, St. Joe Station, Butler Co., Pa.

1¢ In responding to this advertisement mention GLEANINGS.

A BARGAIN.

100 COLONIES OF HYBRID ITALIANS, AND black bees, in 8-frame L. and Simplicity or Electric hives, wired combs. Call, or write how many colonies you want, and I will surprise you with a low price.

W. L. COGGSHALL,

West Groton, N. Y.

8-9-10d

1¢ In responding to this advertisement mention GLEANINGS.

Pure Italian Bees For Sale

Two-frame nuclei, \$3.50; 3-frame, \$4.00. Full colony in A. I. Root's Simplicity hive, \$7.00. Each nucleus and full colony to contain a fine tested queen, and plenty of bees and brood, all on wired L. frames, combs drawn from foundation. To be shipped in May. Safe arrival guaranteed. Hives new, and every thing first-class. I shall do by all as I would be done by.

N. A. KNAPP,

ROCHESTER, LORAIN CO., OHIO.

1¢ In responding to this advertisement mention GLEANINGS.

WHAT TO DO,

—AND—

How to Be Happy While Doing It.

The above book, by A. I. Root, is a compilation of papers published in GLEANINGS in 1886, '7, and 8. It is intended to solve the problem of finding occupation for those scattered over our land, out of employment. The suggestions are principally about finding employment around your own homes. The book is mainly upon market-gardening, fruit culture, poultry-raising, etc. I think the book will be well worth the price, not only to those out of employment, but to any one who loves home and rural industries. Price in paper covers, 50 cts.; cloth, 75 cts. If wanted by mail, add 8 and 10c respectively.

A. I. ROOT, Medina, Ohio.

NICKEL-PLATED "LEADER" SHEARS.

Elegantly Nickel-Plated Steel Shears
At Less than Half the Usual Price.

TABLE OF PRICES.

Postage.		Name.	Prices		
			One.	10	100
5	6½-inch	nickel Leader Shears.....	\$ 20	\$1 90	\$18 50
5	7	" " " " " ".....	25	2 30	22 50
5	7½	" " " " " ".....	30	2 70	26 00
5	8	" " " " " ".....	35	3 00	29 00
6	8½	" " " " " ".....	40	3 40	33 00
8	9	" " " " " ".....	45	3 80	37 00
10	10	" " " " " ".....	50	4 20	41 00

The above are all what are known as straight trimmers, as shown in the cut, except the 9 and 10 inch. Part of these are straight, but most of them are bent trimmers; that is, the bottom of the shear, or bottom blade, is on a level with the bottom of handle. Such large shears are generally used for cutting on a table, and this shape is preferable. We have also a few dozen 9-inch barber shears that will be put in at the same price. These shears are made near here, and we have been in the factory, and have seen them in process of making. The blades are steel laid, and all is handsomely nickel plated. Now you will want to know how we can sell them so cheap. In welding the steel plate on to the blades there will sometimes be a little flaw that can not be all taken out in polishing. These slight blemishes do not injure the shears a particle for actual service, but still they don't like to put them among the first grade of perfect goods. They are kept by themselves, and sold at a lower price. Of course, these goods are not regular stock, and are not advertised by the makers. Therefore whoever takes the lot as they come can get them very low. Having bought so large a quantity, 150 dozen, we got them at our own price, and it is for that reason that we are able to offer the above bargains. Some of the shears are perfect in every respect, except that they lack a full nickel plate all over, and some are so near perfect that you can not see any thing at all the matter with them, and they are all just as good for service as the very best grade.

A. I. ROOT, Medina, O.

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BEES FOR SALE CHEAP.

Seventy colonies of bees in Langstroth hives. They are all in first-class order. Hives and bees for \$2.50 apiece. Reason for selling, have not time to take care of them.

11-12d LEROY MAIN, Slingerland, Albany Co., N. Y.

☞ In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, \$1.25 each; untested, June to Oct., 75 cts.; 3 for \$2.00. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tfdb JNO. NEBEL & SON, High Hill, Mo.

THOROUGHbred White P. Rock, W. Wyandotte eggs, \$1.50 per 13; L. Brahma, P. Rock, L. Wyandotte, W. and B. Leghorn eggs, \$1.00 per 13. **Italian Queens**, reared on the Doolittle plan, select tested, in May, \$3.00; June, \$2.50. Warranted, May, \$1.25; June, \$1.00.

7-12db C. H. WATSON, Newtown, Bucks Co., Pa.

Chas. A. Stockbridge, Fort Wayne, Ind.

Manufacturer of and Dealer in

STOCKBRIDGE'S SIMPLICITY BEE HIVE,

Sections, Frames, Smokers, Comb Foundation, &c.

Mention this Paper.

Send for Price List.

CHEAPEST EVER KNOWN.

One pure 1888 Italian queen, with $\frac{1}{2}$ lb. bees, all for \$1.00. I will sell at this price June and July only.

11tfdb C. E. PRICE, Smithtown Branch, Suffolk Co., L. I.



1889. 1889. Italian Queens.

Select tested, in May, \$2.50; June, \$2.00; July 1 to Nov. 1, \$1.50. Queens warranted purely mated, \$1.00; 6 for \$5.00. Will commence shipping May 1, and ship as booked. Make money orders payable at Nicholasville. Send for circular.

J. T. WILSON, Little Hickman, Jess. Co., Ky.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

3-14db R. B. LEAHY & CO., Box 11, Higginsville, Mo.

☞ In responding to this advertisement mention GLEANINGS.

Italian and Albino Queens and Bees

OR THEIR CROSSES,

Ready to Ship May 15th.

The crosses of these two races make the finest bees I ever saw. They are large, very light colored, and good workers. Will sell in any shape or quantity to suit purchaser. Send for price list, and five cents for sample of bees.

9-11-13d

A. L. KILDOW, Sheffield, Ill.

☞ In responding to this advertisement mention GLEANINGS.

Apiarian Supplies.

V-GROOVE SECTIONS OF BASSWOOD, SHIPPING-CASES OF BASSWOOD, HIVES OF WHITE PINE COMPLETE.

Manufactured by

9-11

WARREN MFG. CO., Riverton, Virginia.

13 d

☞ In responding to this advertisement mention GLEANINGS.

J. P. MOORE

Takes this means of informing his many bee-keeping friends that he is again rearing queens from his choice strain of Italians, at the following prices:

Warranted queens, \$1.00 each; 3 for \$2.50; 6 for \$5.00. Safe arrival and satisfaction guaranteed. Circular free.

11d

J. P. MOORE, Morgan, Pendleton Co., Ky.

HEADQUARTERS IN THE SOUTH. FACTORY OF BEE-HIVES, ETC.

From now on I will sell my 4-frame nuclei, with Italian queen, at \$3.75. In lots of 5, at \$3.50 each. Untested queens at \$9.00 per dozen in June, \$8.00 per dozen in July. Satisfaction and safe arrival guaranteed. Eleventh annual catalogue.

11tfdb

P. L. VIALLO, Bayou Goula, La.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE CHEAP.

200 LANGSTROTH and SIMPLICITY HIVES, some new and in the flat; a lot of empty comb, a Novice extractor, and other bee-fixtures, which I will sell cheap. Write for particulars. Reasons for selling, I am out of the business.

11tfdb

W. J. FRANCISCO, Marshall, Mich.

☞ In responding to this advertisement mention GLEANINGS.

LEARN TO WRITE YOUR OWN NAME WELL by sending 20 cts. to F. A. WOOTTON, Penman, Skilesville, Ky., for 12 beautiful cards with your name finely written in different combinations. Various styles of cards, alphabets, etc., fresh from the pen. *Best references.* 10-11d

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION. See advertisement in another column.

1000 LBS. OF ITALIAN BEES FOR SALE AT 75 CENTS PER LB.

Three-frame nuclei, with tested Italian queen, \$3.00 each. Tested Italian queens, \$1 each. Untested, 75 cts. each or three for \$2.

10tfdb

I. R. GOOD, Nappanee, Ind.

A Four-Color Label for Only 75 Cts Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is $2\frac{1}{2}$ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; F. L. Dougherty, Indianapolis, Ind.; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.



This is a picture of a rabbit. It is an animal of this species that is overrunning Australia. The rapidity with which it increases is something wonderful. Such rapid increase is not always desirable, let it be among the rabbits of Australia or among colonies in the apiary. And this brings us to the point where we can say

that the BEE-KEEPERS' REVIEW for May discusses "The Management and Control of Increase," and that we should be delighted to be allowed to send a copy to any reader of *Gleanings*. It will be sent free, and with it will be sent the May and July numbers for 1888. Price of the REVIEW, 50 cts. a year. Back numbers furnished.

The Production of Comb Honey is a neat little book of 45 pages; price 25 cts. This book and the REVIEW one year for 65 cts. For \$1.00 the REVIEW will be sent two years, and the book "thrown in." Stamps taken, either U. S. or Canadian.

W. Z. HUTCHINSON,

613 Wood St.

Flint, Mich.

In responding to this advertisement mention GLEANINGS.

Gift! Gift! Gift!

To every purchaser of one tested yellow Italian queen, in June and after, for \$1.50, I will give one L. frame nucleus, 50 cts., for each added frame of brood and bees. Tested queens, \$1.25; untested, \$1.00. Send for price list.

MRS. OLIVER COLE,
Sherburne, Chen. Co., N. Y.
Chenango Valley Apiary.

10tfdb

In responding to this advertisement mention GLEANINGS.

THE BRIGHTEST FOUR-BANDED GOLDEN ITALIAN BEES AND QUEENS, AND THE REDDEST DRONES.

Price, select tested, \$3.00; tested, \$2.00. Untested, in May, \$1.25; June and after, \$1.00.

9-12db

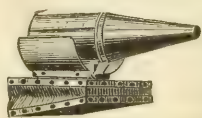
L. L. HEARN, Frenchville, W. Va.



Bingham & Hetherington's Honey-knife. Patented 1879.

Bingham Smokers and Bingham & Hetherington Honey-knives are staple tools, and have been used ten years without complaint. The smokers last, work easily, throw a stream of smoke ten feet, and save time, stings, and money. Send card for descriptive circular of the cheapest and best tools in use—free.

THEY LAST.



Patented 1879.

ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

ELM GROVE, MASS.—Have one I have used six seasons, good yet. F. M. TAINTOR.

AUSTIN, TEXAS, Apr. 24, 1889.—Goods came through in good order. We are glad we can show our customers a full line of solid comfort.

Fraternally, J. W. TAYLOR.

FARINA, ILL., Mar. 23, 1889.—Those who see me use your smoker can not be persuaded to buy any other. They stand the test and do the work every time. Respectfully, M. D. HEWETT.

PRICES:

	By mail, postpaid.
Doctor smoker (wide shield)	3½ inch \$2 00
Conqueror smoker (wide shield) 3 "	 1 75
Large smoker (wide shield)	2½ " 1 50
Extra smoker (wide shield)	2 " 1 25
Plain smoker	2 " 1 00
Little Wonder smoker	1¼ " 65
Bingham & Hetherington Honey-knife	 1 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address T. F. BINGHAM, or 11-16db BINGHAM & HETHERINGTON, ABRONIA, MICH.

"VALLEY FARM" APIARY.

To reduce stock I will sell 5 to 10 colonies of Italian bees in Simp. hives. Queens were bred from one of Mr. Doolittle's \$4.00 tested queens. Price \$5 to \$8, according to prolificness of queen, etc.

G. WIEDEHOLD, Yorkers, N. Y. Opp. Dunwoodie Station.
Mention GLEANINGS. 9-10-11d

MY 21ST ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. H. H. BROWN, Light Street, Cal. Co., Pa.
Mention GLEANINGS. 10-11d

TESTED ITALIAN QUEENS, \$2.00.
UNTESTED, AFTER JUNE 1, \$1.00.
PRICE LIST FREE. R. W. TURNER, Medina, O.

CARNIOLAN QUEENS

From imported mothers. Untested queens, \$1.00; tested queens, \$2.00. J. B. KLINE'S APIARY, Topeka, Kansas.

J. C. SAYLES, HARTFORD, WIS.,

Manufactures Apiarian Supplies of Every Description. Catalogue Free to All.
3tfdb Send Your Address.

In responding to this advertisement mention GLEANINGS.

FOR SALE.

Fifty colonies of Italian bees in 10-frame Langstroth hives, at \$5.00 per stand; 10 per cent off for more than one stand. JOHN GRANT, 7-11db Batavia, Clermont Co., O.

THREE - FRAME NUCLEUS, with one-year-old queen, Heddon's improved strain, \$1.50. Frames 12¼x9¼ outside. 10-11-12d
H. L. FISHER, Milford, Kosciusko Co., Ind.

SECTION PRESS.

PRICE \$2.00.



PATENTED JULY 12, 1887.

For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to

WAKEMAN & CROCKER, Lockport, N. Y.

In responding to this advertisement mention GLEANINGS.

FOR SALE.

Sections in bushel boxes, No. 1, \$3.00 per M. Japanese buckwheat; a complete S. or L. hive for comb honey, 75c; shipping-crates, and all kinds of supplies cheap. Price list free.

W. D. SOPER, Jackson, Mich.

ITALIAN

BEES AND QUEENS. Tested queens, \$1.50. Untested, \$1.00. Bees, per lb., \$1.00. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list.

MISS A. M. TAYLOR,

9-10tfdb Box 77. Mulberry Grove, Bond Co., Ill.

In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	to Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75
Tested.....	3 00	2 75	1 75	1 50
Untested.....		1 25	1 00	1 00
6 Untested.....		5 50	5 00	4 50
12 Untested.....		9 50	9 00	8 50

Contracts taken with dealers to furnish queens by the week at special rates. Address

5-21db J. P. CALDWELL, San Marcos, Tex.

In responding to this advertisement mention GLEANINGS.

FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars.

9-14db DR. A. B. MASON,

Auburndale, Ohio.

THE EASIEST WAY TO GET YOUR CHAFF HIVES,

Is to sell a few for me to your neighbors, and make profit enough to buy your own. Write for terms at once.

3tfdb J. A. ROE, Union City, Ind.

In responding to this advertisement mention GLEANINGS.

WANTED! At Plattsmouth, Nebraska, to Sell 3-Frame Nucleus Colonies Italian Bees with Queens, at \$2.50 Each.

9tfdb J. M. YOUNG, Box 874, Plattsmouth, Neb.

A OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION. See advertisement in another column.



Eaton's Improved SECTION CASE. BEES AND QUEENS. Send for free catalogue. Address

FRANK A. EATON,

5-16db Bluffton, Ohio.

In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. In this department, or we will not be responsible for any error. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and a h. p. engine, or any thing useful on a plantation.

21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address

OTTO KLEINOW,

4tfdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange nice box-machine with tongue and groover, swing saw, Root 4 piece section-machine, belts, hangers, boxes, shafting, pulleys, fancy poultry, for a nice young sound carriage-ho se. Address J. B. MASON, Mechanic Falls, Me.

WANTED.—To exchange a new foot-power saw for extracted honey; the machine to be shipped now, but the honey after the honey-harvest.

11d W. S. WRIGHT, Battle Creek, Calhoun Co., Mich.

WHO wants to exchange a bicycle or a compound microscope for bees or a magic lantern? L. HEINE, Bellmore, Queens Co., N. Y. 11d

WANTED.—To exchange Crystal City strawberry-plants, earliest kind, for extracted honey. 11d

I. LANZ, Joelton, Davidson Co., Tenn.

WANTED.—To exchange for 1 colony of bees, or 2 nuclei, 3 frames, one S. Collie (bitch) 6 mo. old; its dame direct from Scotland; also pure B. L. eggs, for bees.

ROBT. GOLLING,

11d Chase, Lake Co., Mich.

Black and Hybrid Queens For Sale.

I have a few hybrid queens for sale. For prices address

MRS. L. C. AXTELL, Roseville, Ill.

Ten hybrid queens for sale at 25 and 50 cts. each.

LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—10 hybrid queens, reared last fall, at 25 cts. each, by return mail.

G. D. BLACK,

Brandon, Iowa.

Four hybrids for sale at 25 cts. each.

J. B. KLINE, Topeka, Kan.

Black and hybrid queens for sale, 30 and 50 cts. respectively.

J. A. KIME, Fairfield, Pa.

Hybrid queens by return mail—1, 35 cts.; 3 for \$1.

GEO. L. FERRIS, Five Corners, N. Y.

Prairie Farm Apiary.

I have about 50 or 75 hybrid queens for sale. Price 50 cts. each, or \$5 per dozen. They are all last year's queens, and they are daughters of a pure Carniolan queen which has mated with an Italian drone. They are large and prolific queens, and their progeny make splendid honey-gatherers. The reason for selling is, I want all pure Carniolans. Speak quick if you want a nice queen for a little money.

W. W. LOCKHART,

Box 103, Lake George, N. Y.

UNTESTED QUEENS AT A. I. ROOT'S PRICES.

D. A. McCord, Oxford, Butler Co., Ohio. 11-21 '89

*J. Mattoon, Atwater, Portage Co., Ohio. 13tfdb89

S. R. Roddy, Mechanicstown, Fred. Co., Md. 11-13d

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Our market is bare of comb honey. All cleaned out; in first-class shape for new crop. Same with extracted; no white-clover, basswood, or buckwheat on hand. New Southern honey is coming in fast; a good fair article brings from 6½@70c per gallon. Fine new orange-bloom from 7½@8, on arrival. *Beeswax* scarce; good demand. Will bring from 26½@27½, according to color. **HILDRETH BROS. & SEGELKEN,**
May 25. 28 & 30 West Broadway, New York.

CINCINNATI.—*Honey.*—The new feature is plentiful arrivals of new comb and ext'd honey from the Southern States, where the season had a most prosperous beginning. Demand is fair. Extracted honey brings 5@8 on arrival. Comb honey, 11@16 in a jobbing way. *Beeswax* in good demand, and prices have advanced. It brings 22@24 for good to choice yellow. **CHAS. F. MUTH & SON,**
May 21. Cincinnati, O.

ST. LOUIS.—*Honey.*—Choice white clover honey in 1-lb. sections, single-layer boxes, in good demand at 15. Extracted honey, slow sales at former quotations. *Beeswax*, in good demand, 23. Prospect for much larger yield of honey in 1889 than in 1888. Think fully ¼ better. **W. B. WESTCOTT & Co.,**
May 23. St. Louis, Mo.

NEW YORK.—*Honey.*—Stocks of comb as well as extracted are pretty well cleaned out; some shipments from Florida have arrived, which bring fair prices, owing to its fine quality, and scarcity of other grades. *Beeswax* is scarce; we quote 26@27 for good stock. **F. G. STROHMEYER,**
May 21. New York.

ST. LOUIS.—*Honey.*—We quote bright, good-flavored, strained and extracted, in barrels, 6½@6¾; dark, 5¾@6. Demand good. *Beeswax*, prime, 23, and scarce. **D. G. TUTT GROCER CO.,**
May 22. St. Louis, Mo.

DETROIT.—*Honey.*—Best white comb honey in one-pound sections is selling at 14@15; market very quiet. *Beeswax*, firm at 23@24. **M. H. HUNT,**
Bell Branch, Mich., May 22.

ALBANY.—*Honey.*—Market unchanged. Out of season; nothing selling, and none to sell. **H. R. WRIGHT,**
May 22. Albany, N. Y.

KANSAS CITY.—*Honey.*—No change to report in our honey market since our last quotations. **CLEMONS, CLOON & Co.,**
May 23. Kansas City, Mo.

NEW YORK.—*Honey.*—Comb honey, no demand. *Beeswax*, in good demand at 27@29. We shall have a clean stock for the new. **C. H. KILMER,**
May 21. New York.

BOSTON.—*Honey.*—No change in prices. Sales very slow. **BLAKE & RIPLEY,**
May 22. Boston, Mass.

Carniolan * Bees.

PLEASANTEST BEES IN THE WORLD.
HARDIEST TO WINTER.
BEST HONEY-GATHERERS.

IN ORDER TO INTRODUCE NOT ONLY THE
BEES BUT OUR PAPER,

"THE ADVANCE,"

We offer to any one who will send us \$1.25, a copy of our paper and a nice Carniolan queen. The queen alone is worth \$2.00. Address

"THE ADVANCE," Mechanic Falls, Me.

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.

WARRANTED * QUEENS AT REDUCED PRICES.

We have a number of young queens, bred by the

MOST IMPROVED METHODS,

as good as when bred by the swarming impulse, which we will warrant at 80 cts. each, or \$9 00 a doz. Money orders, New Iberia, La.

J. W. K. SHAW & CO.,
11d Loreauville, Iberia Parish, La.

In responding to this advertisement mention GLEANINGS.

Carniolan Queens.

Importing and breeding this race exclusively since 1884; the demand for them has more than doubled each season. Send postal for circular, or \$1 for choice untested queen; \$5 per half-dozen; \$5 for Benton's best grade imported queen. 11ftdb

S. W. MORRISON, Oxford, Chester Co., Pa.

In responding to this advertisement mention GLEANINGS.

Bees * Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

In responding to this advertisement mention GLEANINGS.

BY RETURN MAIL.

After June 8, 100 of J. F. Wood's warranted Italian queens, at \$8.00 per dozen. If less than one dozen are wanted, 75 cts. each is my price. I wish to call special attention to the fact that I have control of all bees within three miles of my apiary, and can largely control the mating of my queens with the drones I choose. I did not have one per cent of my queens mated last season, hence I am able to warrant every queen without extra charge. Every queen that proves to be mated will be replaced by a select tested queen, suitable for a mother-bee. Safe arrival guaranteed, and queens warranted to be as good as those of any first-class breeder. All letters will receive my personal attention as soon as received. **JAS. F. WOOD,**
11-13d North Prescott, Mass.

In responding to this advertisement mention GLEANINGS.

COMB FOUNDATION ADVANCED

FIVE CTS. PER POUND.

We are compelled to make this advance on account of the scarcity and raise in price of wax. Please take notice.

A. I. ROOT, Medina, Ohio.

LOOK HERE! Cheap Enough At Last.

Full colonies of pure Italian bees in A. I. Root's Simplicity hive, only \$4.00 each. Now ready to ship. Frames, wired combs drawn from fdn., every thing first-class. Write for prices of Poland China swine, White and Brown Leghorn chickens, and Mallard ducks. Eggs for hatching. Also white and black ferrets. Address **N. A. KNAPP,**
11ftdb ROCHESTER, LORAIN CO., OHIO.

In responding to this advertisement mention GLEANINGS.



Vol. XVII.

JUNE 1, 1889.

No. 11.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

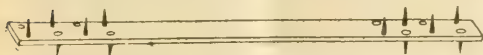
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES—NO. VIII.

RIGGING A WAGON FOR HAULING BEES.

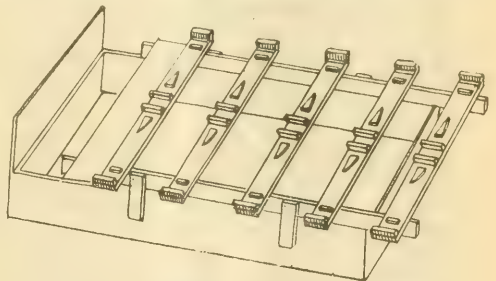
THE first moving of bees of which I have any recollection was done in a very primitive manner. The bees were in a box hive. The hive was set right side up (the bottom, of course, open), on a sheet. The four corners of the sheet were tied together over the top of the hive; a pole was thrust through and carried on the shoulders of two men a distance of about two miles, at night. When I commenced hauling my own bees I had a common one-horse wagon, the box of which was about 8 ft. long and 3 ft. wide, inside measure. My hives were Langstroth, with cleats on the sides, making them so wide that two would not sit in the wagon side by side, so I could get only four in the wagon, using one for a seat. I increased the load to seven by putting three on top of the hindmost three. If simply placed on top without fastening, the upper hive would slip off. I made a pair of sticks to place between the upper and lower hive so there could be no sliding. The sticks were as long as the tops of the hives, about an inch wide, and one-fourth inch thick. Near each end, several common big-headed tacks were driven through from each side.



STICK WITH TACKS TO HOLD ONE HIVE ON ANOTHER.

The bottom hive was placed on the wagon; one of these sticks was pressed on top on each side, then the other hive was placed on it, and there was about as much security from slipping as if the hives were nailed together.

But one horse could easily haul more than seven, over good roads. I then made a sort of rack to put on the wagon-box. It is made of fence-boards. Two side-boards rest on the side-boards of the wagon-box, and at or near each end two pieces are nailed in, forming an open box without top or bottom.



RACK ON WAGON-BOX, FOR HAULING BEES.

Then five cross-pieces are nailed on top, and blocks nailed on these to hold the hives in place. Two pieces are nailed on each side (as seen in the cut), which slip down on the wagon-box and keep the rack from slipping off. A loose board in front answers for a seat. The hind end of the rack is propped up, at time of loading, till 3 hives are slid under from behind, then the rack is let down, and the 8 hives loaded on, making 11 hives for the full load. I have a similar rack, only larger, to fit Jack Wilson's milk-wagon, on which, drawn by two horses, I can haul 17 hives. Jack is one of the brothers-in-law worth having, for generally about the time I want to haul bees he seems to have things happen so as to say that he has an idle team that I can have just as well as not. Thus I can take 28 colonies each trip. These are both spring wagons, and, al-

though not absolutely necessary, I like springs, for then you don't need to drive so carefully. A common hay-rack answers very well to haul bees on. Some use a hay-rack with a considerable depth of hay or straw on it, say a quarter of a ton. This acts much the same as springs. It adds to the weight, however, and has the disadvantage that the hives don't sit down flat and regular, but are likely to be in all sorts of shapes. I have used with entire satisfaction a common lumber or farm wagon, with a hay-rack on it, without hay and without springs. Possibly on very rough roads this might not answer so well; but with careful driving I think I would risk it anywhere. I put on a few extra boards and blocks to fit the rack for holding hives. I have seen hives piled on wagons and tied on with ropes, and with some kinds of hives this will answer very well. Indeed, the kind of hives may have much to do with the arrangement for hauling.

Marengo, Ill.

C. C. MILLER.

When we moved our bees to the basswood orchard the boys borrowed our wagon, made specially for carrying fruit and vegetables; and it answered the purpose so nicely that I think we shall have to give you an engraving of it, perhaps in the next issue.

APIARIAN MOSAIC.

PROF. COOK SETS US RIGHT IN SEVERAL MATTERS.

DEAR MR. EDITOR:—I dub this article a "mosaic," as I shall speak of several matters and say but little of each.

I was very much interested in the article from A. E. Manum, p. 340. The clear description, simple, clear style, and familiarity with the subject in hand, are each and all most admirable. How easy it is to tell, simply by reading an article, whether the writer knows what he is talking about! As Mr. Langstroth once said to me, in speaking of Virgil and Columella, "Virgil," said he, "writes as a poet who gleaned his facts at second hand; Columella as one who had handled the things of which he wrote."

In reference to the cardinal flower, as I said before, I never saw a bee on this species of lobelia, though I have often seen them on the blue species. It came to me as a fact from friend Hilton, that bees did really work on it and gathered much fine honey from this source. It seemed to me that there could be no doubt in the matter. The fact granted, then, to quote President Cleveland, "we were confronted with a condition, not a theory." True, as friend Gould says, the corolla-tube of this beautiful flower is long; yet the very fact of the brilliancy of the flower makes it clear that it secretes much nectar. Is it not probable, then, that the nectar may, in times very favorable to secretion, rise up so as to be in easy reach of the honey-bee? I take it that this is just the explanation. Usually there is not enough nectar so that the bees can reach it; occasionally, as in the case mentioned, it rises up so that it gives a bountiful harvest to the bees.

I also believe that fertilization by some bird or insect is quite necessary. True, the wind might bear the pollen to the waiting stigma, but the chance of failure would be too great by far. Aided by insects there is scarcely a chance for failure.

Mr. G. asks about bees eating into flowers, and

really friend Root brings you and me squarely face to face as antagonists, and then asks the old question as to procedure when doctors disagree. I am glad that, in this case, my opponent is so warm a friend. Now, I do not speak *ex cathedra*. I do not say that honey-bees never cut into flower-tubes; but I feel very positive that this is the case. I presume friend Root simply quoted in this case. I have often seen this statement in print. Larger wild bees certainly cut into flowers, and honey-bees certainly avail themselves of such openings. I know this, for I have seen it repeatedly. I have watched very carefully to see honey-bees do the same, and always without success; so both from observation and the habits of bees—they go to open vessels, not closed ones, for their nectar—I feel persuaded that in this case brother Root is wrong. How is it, dear brother? did you write from personal knowledge or from hearsay?

In reply to E. J. Shay, p. 357, I would state that all larval wasps do cap their cells; so do bees. The larval bee first caps the cell, and later the imago, or adult bees, add a second or wax cap. In many families of wasps there is but the one cover to the larva—its cocoon. In the paper-makers, the larva spins its cocoon just as the larval bee does; only in this case the cocoon is thick, and serves exclusively for capping the cell. In the large paper nests, the capped cells will be seen, and, as all know who have observed them, they are very white, and so contrast strongly with the gray of the paper cells. The fine fibrous silk of the larva is white, while the coarse pulpy paper is gray. The mud-wasps cap their cells with mud before the eggs hatch. Yet even here the larvæ spin a cocoon of silk which surrounds them all through the pupa state.

Our bees have been roaring on the fruit-bloom for three or four days. They commence work before it is fully light, before four o'clock. The flowers are being well fertilized, and we may expect a good crop.

A. J. COOK.

Agricultural College, Mich.

Thank you, friend Cook, for the compliment you pay me in calling me a "warm friend," for I hope and verily believe that we shall be warm friends, no matter what may transpire or come up, while God sees fit to let us both live. Your quotation from father Langstroth sounds exactly like him; and I have a great mind to feel hurt, because, right in the next sentence or two, you ask if I did not write from "hearsay." It revived the matter in another column in regard to what the *Encyclopedia Britannica* has said from *hearsay*. Now, old friend, I do not believe it is one of my failings to make statements in print from hearsay. I love nature too well to take the statement of somebody else, when the bees and the flowers are accessible to me almost every day of my life. When I discovered that the article on the cardinal flower had gone into print, and that I had made no reply whatever, I felt a little sad about it; but I am very glad you have straightened it all out. Like you I have seen the bees sucking nectar through holes in the tube, or, rather, little horn, of different kinds of flowers, and I took it for granted that the Italians themselves made the holes. I do not think that anybody ever told me so. As you state it, however, I think that my fault was in draw-

ing conclusions hastily. I never *saw* a bee bite one of the holes; but I have seen them bite and gnaw wood and enameled sheets, and other things much more substantial. Unless something further comes to light in regard to this matter, the A B C will be changed in the next edition. Your explanation in regard to the capping made by larvæ agrees exactly with my own observation. I am glad, friend Cook, that *you* enjoy, as I do, seeing the bees commence work on the fruit-trees *before* four o'clock in the morning.

A. E. MANUM EXPLAINS.

TARRED PAPER TO KEEP AWAY ANTS; LARGE BASSWOOD YIELDS, ETC.

GLEANINGS of May 15 is just at hand; and while I was writing something to appear in its columns for June 15, Mr. Scott (one of my men) was feasting on the good things it contains. When he came to me and asked the privilege of reading me your comments on the use of tarred paper to keep ants at a proper distance, I at once dropped that subject and took up this one in answer to your comments, in order to have it go in the morning's mail.

I do not use the paper in the brood-chamber, but outside of it, and inside the outer case. My hives are all chaff hives. Tell "Mrs. S., down in the lunch-room," to get a strong man to lift the sugar-barrel (as I suppose it is full, as all are liable to be when near a cook-room) while she slips a large piece of the tarred paper under it. The paper should be larger than the bottom of the barrel. Do not throw the paper into the barrel, as you propose. If that does not keep them away, tell her to sprinkle fine salt around the barrel.

SPECKLED TROUT.

I did write one page, telling all about our trout-fishing, but finally left it out, as you had requested me to be as brief as possible. I find it difficult to tell your readers all I wish to in the space you allow me.

VERMONT BASSWOOD; LARGE YIELDS PER COLONY.

You ask on page 402, about our basswood range. I do not think that my location is one of the best for basswood honey, and it is one of the poorest for clover of any that I know of in Vermont; yet in a favorable season it is not uncommon, in the height of clover-bloom, for our scale hives to register 8, 10, and 15 lbs. per day for a very few days. But remember, we aim to have large swarms; we work hard from early spring up to clover bloom to induce queens to lay a large number of eggs. Our basswoods are principally at the base of our mountains, and not as far up on the mountains as Bro. Doolittle's are, hence our basswood seasons are not as prolonged as his are. There are a goodly number of basswoods scattered among other timber in the valleys and over the foot-hills; but this is being cut off very fast. One factory here in our town bought last winter over 300,000 feet of basswood logs. All were cut within range of my bees, hence I may not be able to report 33½ lbs. per day this season, although I shall try hard to secure 50 lbs. in one day. If I do succeed in reaching 50 lbs. I will tell you how it is done. It is all to be gathered by one queen's progeny.

I hope, Mr. Root, you will some day favor us

Vermonters with your presence; and if you should visit us in the trout season I assure you we will try to give you a feast on speckled trout, and will try to fill your pockets with spruce gum to take home to the children. And I now invite you and yours to make us a visit whenever you can spare the time.

Bristol, Vt., May 21, 1889.

A. E. MANUM.

Thanks, friend M., for your kind invitation. Possibly I may be able to call on my friends up your way next season. This fall, you know I am to look over Wisconsin and the adjacent territory. In regard to basswood-trees, I do not feel satisfied, because there are so few planting them. Our trees are now looking very handsome, and Ernest has got into pretty fair running order what we call the "Basswood" apiary. My dreams of 17 years ago, we expect are to be realized this season; i. e., seeing bees store honey from trees over their own hives, and said trees to be of my own planting. Unless we do plant basswood groves, bee-keeping, to a large extent, must go down. Now, brethren, please remember that these are the words of Uncle Amos.

A BIG TESTIMONIAL IN FAVOR OF PERFORATED ZINC.

SHALL WE DESTROY GOOD DRONE COMB, OR USE IT WITH PERFORATED ZINC?

AFTER reading what my neighbor L. E. Mercer said (see page 358) about zinc honey-boards, I started for the apiary to see how the one I got from you by mail this spring was doing. I put it on over a rather small but prolific queen, and filled the super with part drone and part worker comb, and this is what I found: The super was about half full of honey. The drone-cells were empty, and cleaned up for the queen to lay in. The brood-chamber of 8 combs was full of brood to the top-bar, and one outside comb was half full. There were about two dozen drones. I vote the queen-excluder economical and humane. If the queen had been allowed to go above, they would have wasted many pounds of honey in raising thousands of drones; and after extracting the honey I should have shaved the heads off those drones, which is a cruel and expensive practice. I was afraid they would make the bees swarm more, but now I think different; for the super-gives plenty of room for all the bees that can be raised in the brood-chamber. My hives are ten-frame Langstroth, and the bees usually fill 8 combs in the brood-chamber and the lower half of the combs in the upper story with brood before extracting commences; but the queen is soon crowded out of the super combs by the honey. This is contraction, but I sometimes wish the brood-combs were as deep as the Quinby frame, so the queens would not need to go above for room. This might do if all the super combs were built on foundation; but in buying bees I have got a lot of nice straight drone-combs which are splendid to extract from, if the queen could not get to them. Now, the great question with me (and I wish you would pop it to the veterans this season) is, whether to melt up all those drone combs, perhaps 2000, and put foundation in the frames, or put a queen-excluder over the brood-chambers and keep the drone-comb.

THOSE ORANGE-TREES; THE IGNOTUM TOMATO.

I have just sold that little patch of seedling orange-trees that you were admiring when here—1000 trees grown one year in the seed-bed and one year in nursery rows, for \$175, and have enough seed planted to raise from 10,000 to 15,000 more. I received 33 Ignotum tomato-seeds, and have 33 nice plants, transplanted and growing in the garden. That seed is good. J. F. MCINTYRE.

Fillmore, Cal., May 10, 1889.

I am very glad indeed, friend M., that the perforated zinc honey-board works so well in your hands. I think I should use the drone comb, by all means; in fact, a good many prefer drone comb to worker for extracting. I am inclined to think that the bees can store honey faster in drone comb than in worker comb; and I also believe that the honey is thrown out more easily with the extractor. The only objection that I know of is the liability of getting drone brood; but the perforated zinc board ought to remedy this entirely.—I am glad to get your report from the orange-trees. Now, this is one of the mysteries that I can not understand. The demand for orange-trees is large, and yet the prices are what I should call away up. Now, notwithstanding this, thousands of people are found all over California, wanting something to do; in fact, I am afraid that a great many of them went to California just on purpose to get a job, as they could not get one at home. I think my talk on the subject in our last issue pretty nearly solves the problem.—If you got 33 tomato-plants from that little paper of seed, I think that you too, friend M., must be an adept in making seeds grow. May be your good wife kept an eye on them. Give my respects to the little girl who climbed the mountain with her doll-baby, a good deal faster than I could do it with both hands and feet, and all my strength.

FROM DECEMBER TILL MAY.

A REPORT FROM THE GREAT BASSWOOD REGION OF WISCONSIN.

TO-DAY is about the first day that it has rained this season to prevent work, so it gives us opportunity to make a short report at this end of the route. May 18th, and 80 colonies not looked over yet this spring to crop queens or regulate frames. How is that for a modern bee-keeper who takes five bee-papers, and keeps 300 colonies of bees? I am aware that it is a good plan for a bee-man to look over his bees every month or two. I have tried to do so, but in an evil hour I listened to the advice of those who counsel a bee-keeper to have some other business to fall back on, that, in the event of his bees failing during off years, he would have some other string to pull, or some other source of income to provide for his family and keep the wolf from the door. Had I taken the advice of A. I. Root on this point, which was given somewhere in GLEANINGS, all would have been well. His advice was, to put money in the bank, where we could have it handy to draw on to tide us over during poor years. Instead of acting on this sensible plan, after considerable thought I went into the nursery business on a small scale, adding a small orchard, grapevines, small fruits,

etc. Now be it known that this nursery business will take the cake for keeping a man employed 13 months out of the year. To explain how it gets in 13 months, I will say that he can hoe all summer, graft all winter, and in the months of spring and fall when he delivers his stock he will have to do two months' work in one, so that will make the 13 months. The above will explain why I have neglected my bees until this late date. Customers had to have their trees, vines, and plants, at the right time, so bees had to take their chances. Now, if any dissatisfied bee-keeper wants to exchange his bees for nursery stock let him come forward, for I am anxious to have one job or hand, and have the satisfaction of having things done in time. I was unable to visit my bees previous to last week, excepting two or three times, giving them a hasty examination, and feed where necessary to prevent starvation, being all the care they got since taking them out of cellars March 19th and 20th, excepting 60 colonies that were left in six days longer. I see no perceptible difference between those taken out first and those last. Bees have wintered well in this county generally. Mine were too warm all winter. The Sextonville lot, 219 colonies, would have made a good hot-bed if we could have utilized the heat. They were so warm that they dried up all of the moisture on the walls, and would probably have dried the sand on the bottom of the cellar if it had not been covered with dead bees. I don't see how Mr. Barber keeps his bees at a temperature of 70 or 80. Mine at 55 to 65 came out poorly. Many colonies were weak when set out, and quite a number worthless; but they had no spring dwindling. All that were good when taken out are so yet, showing that a high temperature will not hurt bees in a winter repository, if they will stay in the hive.

Up to date I have 318 colonies with queens, out of 350 put in winter quarters. They average better than last year. They have used honey rapidly this spring. We have fed several hundred pounds of reserved comb honey, in going over them this our first time. If they should need feeding again before clover, I shall have to resort to extracted honey, of which we have 1200 lbs.

The prospect here has been rather poor for clover, as previous droughts have caused a light stand; but the present rains may bring forth to advantage all there is of it. In all of my experience with bees, over 30 years, I have never known bees to swarm in April but twice. Last April was one of them. Several swarms were reported the last of the month in this county. My first and last swarms were the 4th of May. We had after that a cold and windy time of ten days duration, which checked all inclination to swarm. I see by reports from all parts of the country that a booming season for bees is confidently expected. Bees are in splendid order; white clover is coming on finely; and being the full year for basswood, a large honey-yield is anticipated. If it comes in as well as predicted, where shall we sell our honey? Judging from the way the small crop of last year filled the market, where can we find an outlet for a large and general crop? It looks as though a large crop in 1889 would put the price down where poor folks could eat it. For one I am not disposed to sell mine cheap until I see it. Eleven years ago, 1878, bees swarmed in April. They had wintered as well or better than last winter. It looked as though we were going to have an exceptionally fine season; but up to September 1st, bees

in this location had not gathered enough stores of winter on; but afterward they got a little run, which gave most colonies enough to winter on. It is too early to predict as to basswood and mint. I will report later.

S. I. FREEBORN.

Ithaca, Wis., May 15, 1889.

Judging from the above, friend F., basswood does not always yield, even in your favored locality. In our locality, the weather during fruit-bloom was more favorable than I remember to have ever seen it before. I am looking forward with considerable interest to my visit when your basswoods are doing their best.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

THE SAME OLD STORY.

FRIEND ROOT:—Inclosed I send you an article which adorned (or darkened) the columns of the *St. Louis Christian Advocate* of May 15. O my brother! how long is this great wrong to continue unrestrained? Not only is it damaging to us as bee-keepers, but it is ruinous to our influence as Christian people. Is there no way by which this iniquitous tide of envy, malice, and hatred may be checked, and we as a God-loving and God-fearing people be allowed to quietly engage in a pursuit which is in every way calculated to lift up, elevate, and ennoble those who engage in it?

SARAH E. DUNCAN.

Lineville, Ia., May 17, 1889.

I think exactly as you do about it, my good friend. The way such falsehoods are passed around looks bad for the community in general. There is a great deal too much "thinking evil." I will explain to our readers, that the paragraph sent us, alluded to in the above, is exactly the same thing as is found on page 81 of our issue for Feb. 1. It does seem sad indeed, that two such papers as the *Lutheran Observer* and the *St. Louis Christian Advocate* should be guilty of such wrong and injustice. If it were a blunder, why can they not for Christianity's sake, if for nothing else, set their readers right with a suitable apology?

THE ENCYCLOPEDIA BRITANNICA, AND ITS MANUFACTURED COMB HONEY.

I have just received my third volume of "*American Supplement*" to the *Cyclopedia Britannica*. By accident I first opened the book at the word "glucose," page 537. Beginning in the left-hand column, 21st line from the top, I read as follows: "Glucose is used chiefly in the manufacture of table syrups and confectionery, in the brewing of ale and beer, and to some extent as food for bees and in the making of artificial honey. No reliable statistics can be had as to the quantity used in brewing, since brewers seek to conceal the fact of its employment. When it is fed to bees, the honey yielded by the bees is almost pure glucose. In artificial honey-making, the comb is made of paraffine and filled with pure glucose by machinery. For whiteness and beauty it rivals the best white clover honey, and can be sold at less than half the

price. Its one defect is, that it is not honey." Chas. Morris, of the Philadelphia Academy of Sciences, is the accredited author of the above statements. After reading the article, my opinion of the Britannica's accuracy was lowered about 100 per cent, and I certainly would never have purchased it had I read the above sooner; for, if containing such strikingly erroneous statements on this subject it could not be thought reliable on any other, unless further examination proved to the contrary.

C. NYSEWANDER, M. D.

Des Moines, Ia., May 12, 1889.

Why, friend N., it is absolutely awful to hear that this false slander that you mention on our industry has got into a cyclopaedia. The address of the publishers is J. M. Stoddart Co., Limited, Philadelphia, Pa. We shall write to them at once, sending them this statement, together with other facts in the matter, and our card offering \$1000 reward, etc.; and I heartily wish that we could persuade every bee-keeper in the land to write them a protest. Have it scattered far and wide; and, if it is a possible thing, make them paste some slips of paper, setting forth the truth, over this paragraph, in every volume published. Besides doing this, the publisher should send a circular to every one who has purchased a volume. I do not believe in "boycotting," as the term is generally understood; but I do believe in putting a stop to this matter of publishing hearsay as science. If somebody should step on your corns you could forgive him, because he did not mean to do it; but if he continued to blunder in this awkward way, day by day, he should be fined, and, if need be, imprisoned until he learned to be careful. Now, then, let us wake up and make ourselves heard. Had we not for years been at work in the matter, there would be a more reasonable excuse for the Britannica folks to say they did not know any better. If the man who writes about bees, for an encyclopaedia, has not enterprise enough to hunt up some genuine bee-men among his acquaintances, in his vicinity, he deserves to suffer.

SOME GOOD SUGGESTIONS FROM FRIEND POPPLETON.

TIMOTHY CHAFF VERSUS MANY OTHER KINDS, ETC.

FRIEND ROOT:—The contents of May 1st *Gleanings* suggests a few ideas, most or all of which are old ones, but seem to be new to some of your readers. On page 340, friend Manum advises against spreading the brood as early as May 10, but thinks it well to do so during the honey season. My idea is exactly the reverse of this. We want all the bees raised that is possible before the honey-flow, and as few as possible during the flow. I have followed this practice nearly ever since commencing bee-keeping, and have found it good. I am in thorough accord with what friend Doolittle says on this subject, on page 352.

On page 364, Ernest tells of starved bees on account of a cold snap. Did this occur in your chaff hives? If so, you have had an experience that I never had in my dozen years' use of such hives. I have frequently contended that chaff hives are worth all their extra cost, for this feature alone.

I was surprised to see on the same page that you and others have only just dispensed with loose chaff over your bees. I supposed I had called your attention to this point years ago, in the columns of GLEANINGS, but I may have overlooked doing so. Don't make the cushion a little but a good deal larger than the top of the brood-chamber, and a clear space should always be left between the top of the cushion and cover of the hive. This prevents accumulation of moisture.

On page 360, friend Freeman asks some questions about timothy chaff being suitable for packing bees, and in your foot-note you say you "suppose any thing of that sort will do about as well," and you "think timothy chaff might be a little more apt to pack down tight and get moldy." Please excuse me if I say that you are decidedly wrong in both of those ideas. You will find a column article from me on this very subject in GLEANINGS for 1882, page 326. During the first years of experience with chaff hives I tested all the different materials for packing that I could get conveniently, and found them of value in the following order. 1. Timothy chaff; 2. Fine sawdust from dry pine; 3. Wheat chaff; 4. Oat chaff; 5. Buckwheat chaff. I never tested ground cork, but I think that would be superior to all other material. I found that timothy chaff, freed from straws and other coarser materials, would remain dryer during winter than any of the other materials would, showing that it gave better protection from the cold than did other materials. Oat chaff seemed to have a wonderful affinity for moisture. I presume that many failures in the use of chaff hives have resulted from the use of improper materials, or from not using a sufficient quantity of packing. To be successful in the use of chaff hives requires the use of proper materials, of skill, care, and judgement, the same as does the use of any other method of wintering.

In your notes to question 121 you speak of so few saying any thing about seeing swarms go off without clustering at all. The question gave no suggestion of this point, or more could have mentioned it. I knew at least two instances of such in my own apiary. One of them, a prime swarm, commenced to issue while I was standing close by the hive, and I saw it start directly for the woods. It spent no time fooling around in the air, as swarms usually do before clustering.

On page 355, friend La Montagne tells of a large flow of honey from orange-bloom. I have spent four springs in Florida and two in Cuba; have watched the orange-blossoms very closely; have made many inquiries, but have never seen, and this is the first I have ever heard, of such a flow of honey from orange-blossoms. They yield more or less honey, of course; but I judge much less than is done by fruit-blossoms in the North. It would not be wise for any one to commence bee-keeping anywhere on the strength of large expectations of honey from orange-flowers. O. O. POPPLETON.

Havana, Cuba, May 15, 1889.

I felt pretty certain, as you say, that honey from orange-blossoms is rather an exception than the rule. When our attention was first called to the matter of bee-keeping in Florida, there was considerable said about orange-blossom honey; but as years passed, and no considerable quantity was reported we began to think it was a mistake. When friends Baldensperger, how-

ever, on the Mediterranean, gave their report we were forced to conclude that the orange-trees on the Mediterranean produced honey, whether the rest did or not; and now we are glad to know that pure orange-blossom honey is a reality and not a myth. I think, however, that, on account of its rarity and excellence, it ought to command an extra price. We are going to try to get an extra price for what we purchase, if we can. If we can't, why, I suppose demand and supply will have to fix the price. —In regard to the starved bees spoken of by me (Ernest), I would say that the colonies in question were in regular two-story chaff hives. As I stated on page 364, the bees and brood were on one side of the brood-chamber, and the honey on the other. The colonies were average in size. They had reared so much brood that all the bees were required to cover it; and during a cold snap of weather they refused to abandon it. We have had this thing happen repeatedly, though the loss from this source is comparatively slight. I can not explain why you never had such an experience; but, as usual, I shall have to lay it, in the absence of any thing better, to the door of "Locality." Our proof-reader says, that the next time we must lay up to, "electrical conditions." In regard to the timothy chaff and dispensing with loose chaff, you doubtless called our attention to the matter, but, like many other good things, it "got overlooked" in some way. Even editors can't remember all that has been said and done in times gone by, but they are glad to have good friends remind them.

WHY DO BEES SWARM?

WHAT SHALL WE DO TO MAKE THEM LESS LIABLE TO SWARM?

I WAS interested to an unusual degree in reading the replies to questions 125 and 126. Years ago many were asking, "How can I get the most increase from my bees?" Lately, the matter of *preventing* increase has been much discussed. Some have gone beyond that, and care little to know how to prevent increase, but are very anxious for an answer to the question, "How can I best prevent swarming?" I think you will find this question coming very prominently to the front in the near future, especially if out-apiaries continue to increase. Now, questions 125 and 126 have a bearing on prevention of swarming; for if we knew exactly where the swarming impulse originated, and the necessary conditions to induce swarming, we might the better know how to avoid those conditions. I know very well that there is a common belief that better results can be obtained by allowing swarming, and that no other colony works with the same vigor as one newly hived. Whilst this *may* be true, I don't believe it is. At least, I think it possible that we may learn to prevent swarming, and at the same time get just as much surplus. But, you say, swarming is *natural*, and we must follow nature. I believe in following nature, probably, about as far as any one; but even those who cry out most loudly for nature, don't let every thing follow its natural course. Let's see: "It's natural for bees to swarm, so we must let them swarm."

All right, my friend; but it's just as natural for the swarm to go off, so we must let it go off. At any rate, I think I would give more to find out the best possible way to prevent swarming than to find out any other one thing connected with bee-keeping. In the answers given to the two questions, there is considerable agreement. Only in the last answer, Hasty starts off on a track all by himself, and says that there is probably only one necessary condition to induce swarming—"a turgid condition of the vessels in the bee anatomy in which are stored the supplies for future brood-rearing." Is the man crazy, or only a natural born fool, to fly off in that sort of style? Well, if you take Hasty for a fool you are altogether too *hasty*. I confess I had never thought of just the reason that he gives for swarming, but I *had* thought about some things closely connected therewith. I think generally, if not always, the hive from which a swarm has issued for me, has been found to have an unusually large quantity of its brood *sealed*. Have others found this to be generally true? If so, Hasty's theory would say, "The bees have been feeding a large quantity of brood, and somewhat suddenly they find the brood all sealed, little young brood to feed, and no place to dispose of the food they have secreted in such abundance for the larvæ. So, in some way, this engorgement leads to the swarming fever." I once had a colony swarm when put on nothing but foundation, leaving nothing in the way of brood except one egg in the queen-cell. They had been baffled several times in the attempt to swarm, each time having a part of their combs taken away. Perhaps Hasty's theory, if I have interpreted it correctly, might apply to this. It is commonly believed that a young queen is much less likely to swarm than an old one. Try Hasty's theory on this. If a queen from old age should suddenly drop off in her laying, the nurse-bees are checked in their feeding, and engorgement occurs. But I have had a young queen swarm before she had been laying a week. Say No. 1 with an old queen swarms and is returned to the hive, and the queen replaced by a queen taken from No. 2, this latter queen having just commenced laying. If the swarm issued because the cells were filled with sealed brood, a change of queens does not make any difference in the condition of the turgid vessels, and this young queen comes out next day with the swarm; whereas if she had been left in No. 2 she would not have swarmed that year. As a general rule, a young queen is not so apt to swarm; but is it not because, commencing later in the season, there is never that condition of affairs in the brood-chamber that prevents the nurses from disposing of all the food they have prepared? Here's an experiment that might be worth trying: From a colony that has just swarmed, take away its frames of sealed brood and give it frames of unsealed brood, either before or after the swarm with its queen has been returned, and see whether it will swarm again. I have failed so many times in trying to thwart a swarming colony, that I am not sanguine about the success of this experiment. Indeed, I'm not sanguine about ever knowing how to successfully prevent swarming; but I'm anxious to learn all I can about it.

Marengo, Ill., May 22, 1889.

C. C. MILLER.

Friend M., I once gave you quite a talking-to for using rough language when you were in fun, and I feel just like scolding you now. I remember very well indeed

that queer expression of Hasty's. I said to myself, "Well, what does the fellow mean, any way?" but I afterward reflected that Hasty is by no means one of the kind who purposely mystify. I did not follow the idea very much, but I did have a dim impression something in the line you have interpreted it; and I believe you have got it about right. The bees swarm because they are in the right condition, and all loaded up, as one might say, to raise great quantities of brood, and, lo and behold, there is not any brood except that which is sealed; and oftentimes there are not any cells to clean out, that the queen may start some more. At this crisis the house is too small; the accommodations are altogether too limited, and without relief in some direction the great business of populating the world with their own kind must come to a standstill. Nature herself has made provision, as she always does, by a sort of safety-valve. When the pressure gets up to the proper limit, open goes the valve, and off goes the steam in the shape of myriads of bees pouring out over the hives with a great jubilee, all hands eager for the new enterprise. Now, good friend Hasty, I beg pardon for taking the matter out of your own hands, and putting my own interpretation on it; but I have done so, taking it for granted you would supply the missing links, and set me right where I am wrong. Now *you* have the floor. If Dr. Miller says any more saucy words, I will scold him some more.

WINTERING BEES OUTDOORS.

PLENTY OF STORES, AND PROTECTION FROM WIND,
PRIME ESSENTIALS.

I WILL mention a few things that I think we must have, to insure success. We want some sort of a windbreak, such as a good grove of timber or high hills, or a high board fence. It is hard on the bees to have a strong wind blowing into the hives in cold weather. In the spring time, when the bees come out for a fly they should be protected from the wind as much as possible. Then for me I want a quadruple hive, chaff lined all around the sides and over the bees. Putting four hives together is a great help to save heat and keep the little folks comfortable.

But the most essential of all things is an *abundance* of something good to eat. *Good* honey is good enough, if there is enough of it. I am satisfied that we have lost more bees (since I commenced keeping bees) by scarcity of honey to winter on than from all other causes combined. Our motto from this on will be, that a great deal too much honey is just enough. There is nothing lost by letting them have more than they will use up. If it is not all used up before we start the extractor, the next year we will get it then. Bees won't breed up fast in the spring if they are short of feed. They may pull through in a weak condition, but be of no use as far as gathering surplus is concerned; when if they had had plenty of feed in the spring they would have built up strong and been a profit to their owner. Now, I believe in feeding during the spring months, if I have to, to save the bees and build them up for business; but I don't like to be obliged to do it. I don't like to be feeding bees in

the spring of the year. I want the hive to contain feed in the fall—enough to last them until white clover will give them a living the next summer. The best time to get the honey in the hive is when the bees are gathering it from the flowers. We have to give our bees their winter supply from the basswood, as, after that, our location will give them only enough for their living, and sometimes not that. Now, to extract all the honey we can, and at the same time not take too much and leave the bees short, is a nice point to decide.

We sometimes get caught on account of rainy weather at the close of the basswood season, and have to feed back, if we find the bees are short of winter stores. The earlier we feed back, the better. During the last of August or first of September it is better to give the bees more than we think they will use; for we can not tell what kind of a winter we are preparing for, but give them enough. It won't do any hurt if they have more than they can use. If they don't use it up we shall get it the following spring. Bees will stand a great amount of cold, if they are out of the wind and have plenty of feed over them. I want my bees to cluster on empty combs below the honey. They will follow the honey up as they use it.

During the fall of 1887, about the first of September we looked over our bees to see if they had plenty to carry them through the winter. We found one yard of 70 colonies, that did not have as much honey as we wished they had, but concluded they would do until spring, and then feed if we had to. We missed it, for that yard came through the poorest of any we had. The bees were weak, and had but very little brood. The honey was scarce, and we fed 500 lbs. As a result, the bees got into good working condition late, and that yard gave the poorest returns of any we had. Better fed in the fall.

E. FRANCE.

Platteville, Wis.

I quite agree with you. I have never seen any bad result follow from having too many bees or too much stores; and I am confident that bees base their calculations, and go to work somewhat in accordance with the amount of stores they have to back them up. In our locality, like yourself we seldom have any thing of any account after basswood closes.—Windbreaks are of very great importance, not only for bees, but for farm stock and plants and crops.

PYRETHRUM AS AN INSECTICIDE, ETC.

BEING CAREFUL TO SAY, "I DON'T KNOW," WHEN
IT OUGHT TO BE SAID.

MR. EDITOR:—You ask if pyrethrum would not kill the itch-mite; and you add that it kills all kinds of insects. This is a mistake. Pyrethrum does not kill many bugs and beetles. I have tried repeatedly to kill the squash-bug with bubach, or California pyrethrum, but with no success. Bubach, in that it is entirely non-poisonous to higher animals, is one of our best insecticides; in that it does not always kill the insects, it is objectionable. I should hope that it would be fatal to the itch-mites; but they are so

concealed that possibly it would not molest them at all. It is very quickly fatal to higher insects, like bees, ants, wasps, flies, and moths and butterflies.

CARE IN GIVING STATISTICS.

Some time ago a report from the Department of Agriculture stated that the chinch-bug had done serious damage in five counties in Michigan. I did not believe this was true. In all my collecting I never yet took a chinch-bug in our State. In one of these counties I had lived, and I was certain there was an error. So I wrote to the Department, and learned the names of the reporters. I at once addressed each a letter as follows: "Do you know the chinch-bug? Do you personally know that it has ever worked in your county? Why did you report ravages from this insect in your county to the Department of Agriculture?" Three of the persons answered. The other two paid no attention to my inquiry. The three reported that they did not know the insect; that they had no personal knowledge on the subject, and did not know that they had so reported.

What are statistics worth, if we are to have such reports? If we don't know enough to answer any question, why not say so? It seems to me that such answers are seriously mischievous. Now, I was reminded of this in reading answers to Query 125, p. 411, GLEANINGS: "Does the swarming impulse come from the queen or workers?" I like the two first answers: "I guess so." We should know that our humorous friend from Toledo got that off, and spontaneously too. The next writer says, "I don't know." Of course, he doesn't. No one does. One says, "From the workers;" another says, "First swarm from 'workers, second, etc., from queen." Now, I don't like these answers. Why say just how, when no one knows? I believe friend Doolittle answers correctly, but I don't see how he can speak so positively.

Now, I do not wish to criticise, only to suggest that we all say, "I don't know," or "I think," in all cases where we have not positive knowledge. In such cases as the above we can at best only give opinions.

A. J. COOK.

Agricultural College, Mich.

Friend C., I am exceedingly obliged to you for both pieces of information. It has been so repeatedly said, especially by advertisers, that pyrethrum kills *all* insects, that I had somehow taken it for granted; and yet I ought to know that it does not kill flea-beetles nor the striped squash-bug; but I supposed it was because I could not give them enough of it. Where flies, mosquitoes, moths, and every insect I have found in our rooms, were treated with the dust-bellows, they always died promptly, and I thought that perhaps these other fellows would also die if we could get them shut up in a room.—In regard to your remarks about saying we don't know, I am going to try to profit by it. But let me suggest that some of the brethren *thought* they knew. As an illustration, I once thought I proved beyond question that the queen leads out the swarm; but pretty soon I had just as plain proof that bees lead out the swarm. First, I *knew*; and then after a while I didn't know. Perhaps it will be well to say we *think* we know, and then give our reasons.

GETTING BEES TO WORK IN SECTIONS.

SOME TIMELY HINTS FROM FRIEND DOOLITTLE IN REGARD TO THE MATTER.

A CORRESPONDENT from Pennsylvania wishes to know how he can get his bees to work in sections when they refuse to do so, and asks, "When the bees refuse to work in sections, and crowd the queen by placing too much honey in the brood combs, can they be made to go into the sections and work, by placing uncapped honey in the brood-nest?" As this question of getting the bees to work in the sections is an important one, and thinking an answer to it might be of interest to the readers of GLEANINGS just at this time, when we of the North are about putting on sections, I will answer the correspondent through your columns, Mr. Editor, with your permission, as the correspondent says he is a subscriber to your paper.

Of late years the idea has prevailed, in some minds, that all that is necessary to get the bees into the sections, is to reverse the combs in the hive so as to get the honey which is generally in the tops of the frames, at the bottom, so that the bees would uncup the same and carry it up into the sections; and I presume that this is in part what gave our correspondent the idea he has of placing unsealed honey in the brood-chamber. I have had very little experience with reversing frames, that little being against the process, except so far as the getting of the combs built out to the frames all around was concerned, but I have tried several times to get the bees to work in sections sooner than they otherwise would, by uncapping the honey which was in the hive and changing the fullest combs to the center of the hive. One year I had three very strong colonies at the beginning of the honey harvest, which had more honey in the brood-chamber than I thought they should have; and being anxious to secure as much honey as possible in sections, I thought to make them take this honey from the brood-combs into the sections by the plan suggested by our correspondent. So I went to work and uncapped all of the honey in one of the hives, at the same time taking away two combs of brood, and placing, instead, two frames which were full of honey, after uncapping it. Not to be badly caught, I thought I would do this a day or two before I served the others in the same way, to see how the plan worked. In less than an hour the most of the bees were on the outside of the hive, badly daubed with honey, as the weather was quite warm at the time. The next morning the most of the bees were in the hive again, but there was no work being done in the sections; only a few bees loafing about there. The third day I opened the hive to see what had become of the honey, and, behold, quite a share of it was being sealed up again, and nothing in the boxes, the bees having changed it about only a little to get it in the part of the hive where they wanted it. Thus failing to accomplish what I desired to, I went to one or two colonies which had commenced to work in sections nicely, and took two boxes of sections, bees and all, and placed them on top of each of these hives, and, to my delight, comb-building was commenced in the other boxes within twenty-four hours, which work soon spread to the whole part of the sections. When the sections were two-thirds full, I examined the hives, and, to

my surprise, I found that the bees had unsealed and carried to the sections one-half of the honey below, and in place of it there were plenty of eggs and larvæ. Thus I learned that bees could be coaxed into sections more easily than they could be driven. Although this was several years ago, yet in every trial which I have conducted along this line, the results have been fully as unsatisfactory where I tried to compel the bees to carry unsealed honey from the brood-chamber into the sections.

One other thing which I learned, and a thing which later experience has confirmed, is, that when bees are at work nicely in sections there is no danger of the queen being crowded with honey in the brood-nest. Now, suppose I had extracted the honey from the brood-nest, as some would have us do when bees refuse to work in the sections, what would have been the result? They would have simply filled the space again, not going into the sections at all, for the simple reason that there was no need of working in the sections as long as there was plenty of room to store honey below. I have so far failed entirely to get extracted honey and section honey from the same colony of bees at the same time; and if any one can succeed in doing this, I confess I do not know how it is done. This extracting from the brood-chamber when working for section honey is very much like trying to secure section honey from a very large brood-chamber from whose combs the bees have consumed the most of the honey the winter previous. In this case the bees would begin to store honey largely at the beginning of the harvest in the empty comb still in the lower part of the hive, and there would be four chances out of five in favor of their continuing to do so till they had nearly crowded all brood-rearing from the hive, resulting in no section honey and a very small colony for winter. The extracting of honey works in the same way so far as the sections are concerned, but it gives a good colony for winter. Sometimes a colony will not work in sections by giving bees and partly filled sections as above; but there is one plan that I have never known to fail: In obstinate cases, get some drone brood and fit it into one or two of the sections, placing them in the center of the section cases; and if honey is coming in from the fields, and your colony is in a condition to work in boxes, you will see them start on either side of this brood at once. After the brood hatches, the bees will store the comb with honey, which will have to be sold as second quality; or you can extract the honey and throw the comb into the wax-extractor as you please.

G. M. DOOLITTLE.

Borodino, N. Y.

The results of my experiments in this line agree almost exactly with your own. Whenever we used to find a section of drone brood in it, instead of lamenting we used to regard it as a prize, because by means of it we could readily coax the bees up above, from almost any colony. In fact, I have by such means coaxed them above when they really had neither bees nor honey enough to warrant their going above at all. Perhaps reversing the combs, in connection with some sections that had been worked on, from some other hive, might answer. It certainly is of great importance that bees be induced to commence in the sections when

honey begins to come in. A little stubbornness at such a time may result in a big loss to the owner of the apiary.

BEE-DRESS.

W. L. COGGSHALL'S BEE-DRESS.

NOW much better it is to have things right, and how much pleasanter it is to use them, and how much more we can accomplish in a day! I know we are creatures of habit. We all have a way to do any particular thing, and always (so we think) a better way than any one else. If any of you who read this will suggest any improvement, it will be very thankfully received, and you will be recompensed for so doing.



My idea of a bee-veil is shown in the accompanying photograph. It is simply a wide-rimmed straw or leg-horn hat, with a stiff rim (I right here went and got my hat to give you measurements). The rim of the hat is 4 inches wide; the length of veil, up and down, 18 inches, and the material is bobinet or millinet, black. I sew the veil on the under side of the rim of the hat, 2 inches from the outer edge of the rim, thus giving a 2-inch projection to shade the veil, so that I can see at any time; for if the sun strikes the veil, I can not see eggs in the cells. I use a flat shoestring for a shir, or take-up, around the

neck, and have all of the gathering in the sides and back of the veil. I sew the veil fast to the string. The shoestring is long enough to tie under the collar, so it is impossible for a bee to get to your face. There is not much gathering in front to obstruct the vision.

When I am not in the bee-yard, or going from one apiary to another, I untie and tuck it in the crown of the hat, and it is out of the way, and all ready at a moment's notice, which we all know is very convenient sometimes.

For hand gear or false sleeves I use colored shirting. After they are made, dip them in linseed oil; hang them in the sun till dry, then the bees can not sting through them. I have a rubber elastic in the upper end above the elbow, also the one that is around the hand; have a thumb-hole worked in above the elastic, so that the hand is all covered, except the thumb and fingers (like a mit), only the fingers are all together. With sleeves made in that way, bees do not crawl up my arms and make me uncomfortable, and give me pain.

W. L. COGGSHALL.

West Groton, N. Y., April 21, 1889.

Now, friend C., although we are very much obliged indeed for the sketch you give

us above, we do not like it a bit because you did not say any thing about that broom. If I recollect right, you told me at Utica that you had a variety of soft broom corn, and that you made soft brooms for the sole purpose of brushing bees off from the combs; that you preferred them to the yucca brushes, the Davis bee-brush, or any thing else that had ever been brought out. You see our engraver has made the broom quite a prominent object. We also wanted to know something about that thing in your other hand. Is it a smoker, or what is it? Tell us about these two implements, with all the particulars, just as you have about the veil and the sleeves.

THE BUTCHER BIRD.

A HARD-HEARTED AND BLOOD-THIRSTY MEMBER OF THE FEATHERED TRIBES.

MR. JULIUS JOHANSEN, Port Clinton, Ohio, writes me in effect as follows:

I send you two black insects (crickets), which, as you will see, are impaled on the short sharp twigs. I took them from my quince-trees. There are many such imprisoned, or, rather, pinned to the tree. Some are dried up, though the two I send you were alive when I found them; and when I severed the twigs from the trees I supposed at first that their impalement was the result of accident; but as I find so many I conclude that some enemy (of the victims) has done this. I have watched closely to discover this jailer, but so far in vain. I think he must work at night, as early in the morning I find most of the fresh victims alive.

To-day I found the large insect (a dragon-fly) hanging to a quince twig. I thought him the one that sticks the others on the spines. As I caught him he dropped a yellow mass which I suppose was made up of eggs, as I find it on the impaled insects. Now, "kind friend," this is quite likely a law of nature that you are entirely familiar with; but it is a great mystery to me, and is doubtless the same to most readers of GLEANINGS; so will you explain the matter in that journal?

Again, are these insects in any way connected with the borers with which my quinces are badly infested?

Oh yes, friend J., I am well acquainted with this curious freak of nature. There is much humor—many jokes—often cruel ones like this of which you write—in nature. And it is this humor, together with the many strange methods by which nature does her work, that gives this study its rare and irresistible fascination.

The cruel persecutor in this case is the well-known butcher bird (*Collyrio borealis*). This bird is also known as the "great northern shrike." It is about the size of the robin, light blue in color, with black tail and wings, and a short black line from the bill through the eye to the base of the neck. It is white beneath. It is slim, strong, and, although a song bird, or percher, yet in its strong feet and hooked bill it reminds us of the birds of prey—the hawks and owls.

In habits this bird is a cruel joker. It catches insects, and even mice, frogs, and birds, and hangs them up on sharp twigs and thorns. Now, if this were simply a provident habit, saving up for times of scarcity, we could forgive his birdship—we certainly could if he would kill his victims before he hangs them up in this excruciating style. But in all my observation I have never seen him take and use any of his victims after they were impaled. It would seem a sort of fiendish sport, and we can hardly doubt but that this bird is a most fit subject

to report to Bergh, as worthy prosecution for cruelty to animals. Yet so long as we see horses, poor, lame, and starved, and yet forced to hard labor under the spur of the cruel lash, we must not berate these birds too severely. It is a very sad fact, that cruelty is not limited to the lower ranks of animal life. It is possible that the shrike may, upon occasion, take and feed upon his impaled victims; but he is so industrious that he can usually obtain enough fresh material for his mate and fledglings. In the rare cases when his hunts are fruitless he repairs to his thorn-bush larder—and so his young are still provided for.

The large dragon-fly found by Mr. J. had no relation to the impaled insects. The dropping from this insect was fecal, not eggs. The darning-needle lays its eggs in water, not in trees nor on other insects. The borers which infest Mr. J.'s quince-trees are in no way related to the insects sent. There are three kinds of beetles that bore or tunnel the quince. These can be kept off by the use of the soap and carbolic-acid mixture, as previously described.

A. J. COOK.

Agricultural College, Mich.

Friend Cook, your statement is, to me, astounding. Were it not as you say, that entomologists are agreed in this matter, I should stick to it pretty stubbornly that you had made a mistake. That a bird should take live animals, and impale them on sharp thorns simply for amusement, is something to me unheard of; and it appears from friend Johnson's statement that the vicious bird actually puts them on while they are alive, and leaves them squirming in agony—that is, if insects suffer as we do. Ernest suggests that the phenomenon may be something akin to the way cats play with mice before they kill them finally.

UNFINISHED SECTIONS.

GOOD REASONS WHY THEY SHOULD NOT BE USED.

MUCH has been written in GLEANINGS of late in favor of using sections filled with comb left over from the preceding season. Some of the writers have contented themselves with simple argument. Others speak from a knowledge born of indefinite experience, while some point triumphantly to two or three experiments which to their minds settle the whole thing. A question of this kind can never be settled by mere argument. Practical experience alone can decide, and I do not remember a single experiment quoted in favor of their use which was carried on in such a way as to be at all conclusive. To really prove any thing, an experiment must be made on a scale large enough to overcome individual variations and under varying conditions. It proves nothing to say that you put a case of unfinished sections on one hive and a case of new sections filled with foundation on another, and that the first case was filled sooner than the other, or that it looked just as well. I used one year about 500 sections filled with comb that were of an altogether different make from those filled with foundation. These partly finished sections were scattered all through the apiary, taking pains to have them impartially distributed, not only in every hive but in nearly every wide frame which I then used. On ac-

count of the difference in sections, every box of honey built on these combs could be distinguished wherever it was seen, from those built on foundation. The result showed that, on an average, the sections containing foundation were finished sooner than those containing comb, and were moreover much nicer in appearance. This experiment, I think it will be admitted, was fairly conclusive. Still, thinking that the variation of seasons might change results, I have tried substantially the same thing every season since, and always with the same results. I shall try it again this season, in the chance of learning something more on the subject, and I hope all who wish to learn for themselves, or are at all skeptical on this point, will do the same. Let every case of sections you prepare for the season's use contain a certain definite number of partly finished sections, placed in a certain part of the case. Compare these sections in their growth and completion with those in the corresponding part of the same case, and average the results. When you take the honey from the cases, put that stored in old combs by itself. If you can not make a distinction, before the honey is sold, between that in new and that in old combs, why, then your experience will be very different from that of mine. My experience has been each year, that it not only costs more to have honey stored in unfinished sections, but that the honey, when finished, is not worth as much. Nearly all such honey must be graded as No. 2, which with me brings usually two cents per pound less than No. 1. Of course, if all the cells must be lengthened out much, the outside is new comb, and will look well enough; but it is very seldom that a section filled with comb will make a really nice section of honey.

Some claim that it is a great advantage to have at least one or two sections of comb in every case at the beginning of the season, as "bait combs," to attract the bees into the supers. This may be of use at times, though I have seldom seen the need of it. However, for other reasons, I prefer to have the bees store their first honey in extracting-combs, so I have been in the habit of placing a shallow set of combs over each hive and removing it as soon as they were well at work in them. Not having enough of these cases to go around, I have this year made extracting-frames which interchange with the section-holders in a case like that of your Dovetailed hive. They are so made that combs cut from unfinished sections will fit in nicely, fastened with rosin and wax, or twine. One of these will be placed in each super. When filled, the honey will be extracted and the combs stored away by the superful ready for a sudden honey-flow; and as the end of the season approaches, they will be returned to the hives in such a way as to largely lessen the number of sections left unfinished. In this way I kill several birds with one stone.

Dayton, Ill., May 10, 1889.

J. A. GREEN.

I am very glad indeed that you have brought this matter up. It has seemed somewhat of late as if the whole thing were to be abandoned as a mistake; but I can not see how it is possible, when we had so many direct testimonies from practical honey-producers, at conventions held winter before last. I had supposed, however, that it was generally agreed that one or two sections, partly filled with comb from the year previous would certainly be an inducement

for the bees to make a start at the commencement of the season. Now, can we not have a good many experiments made during the coming season, and made exactly in the way you have mapped out.

HOW TO RAISE BUCKWHEAT.

BUCKWHEAT IN ILLINOIS.

EVER since keeping bees I have raised from 5 to 16 acres of buckwheat; and the amount per acre, as near as I can remember, has been 10 bushels. In this locality, which is the western part of Central Illinois, we want to sow about the 4th of July; if sown later, it is in danger of being cut off by the frost. I usually sow three pecks per acre, and get best crops from land plowed shallow in the spring, and then broken deeper just before sowing. About one year out of three it pays better than any other crop on the farm, and about one year out of five is a complete failure. When I get the largest crop of grain we usually get the largest amount of honey from the flowers.

For four years now, I have been sowing rye in the fall. Immediately after the crop is matured and taken off, I put the ground to buckwheat. I am not quite so certain of getting a good yield, but two crops a year of grain and one of honey will more than overbalance the difference in the yield. If I wait the thrashing of my other grain until buckwheat is ready, the other grain is liable to spoil in the stack. Sometimes I have thrashed the other grain when it was ready, and thrashed the buckwheat when it was ripe; but that necessitated getting up two sets of hands, which I found expensive; so, year before last I tried thrashing it with flails, myself and two hands, which I found much cheaper, but quite tedious, as it can not be flailed out unless very dry, which in a wet year might occasion quite a loss. Last year I bought the cylinder, and the frame on which it runs, of an old thrashing-machine (for a trifle), which I used as an old-fashioned chaff piler. I just threw the belt from my two-horse tread-power on to the pulley of the cylinder, and with it I could thrash as fast as a hand could pitch it on the table of the machine, which is the best arrangement I have found, and the most satisfactory. Of course, the buckwheat was not cleaned, but it could be stored in the barn, and cleaned some rainy day, or at a leisure time. I expect to raise none but the Japanese buckwheat this year, as I think it pays far better than the gray or silverhull. I have several times tried breaking my oat ground, and putting in buckwheat; but it usually gets caught by the frost, and so late flows do not seem to yield much honey. Some complain that buckwheat injures the ground, but I do not find it so; neither does it bother by coming up where I do not want it. I think this section of country is not so well adapted to buckwheat culture as is Pennsylvania and some other States further east.

L. C. AXTELL.

Roseville, Ill., Apr. 20, 1889.

BUCKWHEAT IN NEW YORK.

Buckwheat is a grain that possesses many features valuable to the farmer, of which many have failed to take advantage. It is a grain credited with the ability to grow on any soil, no matter how poor, and produce a paying crop. The fact is, there

is none of our grains that will better repay sowing on good soil. Buckwheat is very sensitive to climatic changes, and especially so to an east wind and hot burning sun during the time the grain is forming. An *extra* crop can not be raised if the climatic conditions are not favorable; but there has not been a complete failure of the crop in this section since I can remember.

Buckwheat should be sown on a loose mellow soil; and a clover sod turned under is the best. It should be sown while the ground is dry and dusty, and never immediately after a rain. I believe that I lost over 10 bushels per acre by sowing too soon after a rain. Roll the ground immediately after sowing, as the grain sprouts quick, and is sometimes out of the ground in less than four days.

The silverhull variety yields the best with me. When first introduced here a neighbor sowed half a bushel per acre on eight acres, and harvested 200 bushels. In 1887 I plowed under a year-old clover sod, and drilled six bushels on four acres. It came up very thick, grew tall and strong, smothering all weeds, and I harvested 160 bushels, 50 lbs. to the bushel. In this section the bulk of the crop is sown between June 15th and 25th. The fourth-of-July men have had frosted grain of late years. I have known of some fair crops that were sown in May.

Buckwheat should be cut with a self-rake reaper, and tied and set up by hand. Some use a self-binder here, but I have never seen one that did the work satisfactorily to me. Some never tie their buckwheat; but last year, owing to its standing up better, that which was tied was ready to thrash earlier, and brought 75 cts. per bushel, while much that was beaten down by rain brought later only 45 to 50.

Buckwheat being a fast grower, it requires a sufficient amount of plant-food near the surface. If the soil is deficient it can be supplied with commercial fertilizer. It must be remembered, that a sufficient amount of moisture must be present for a chemical fertilizer to help any crop. If this kind of fertilizer is used it should be drilled with the grain. I shall drill at the rate of 200 lbs. per acre on one field this year. Every one must be his own judge as to the amount required, but I would never use less than 100 lbs. per acre, of a standard brand. One rich in potash gives the best results with me. A large grower told me that, with chemical fertilizer, and depth of soil enough to cover the seed, he could raise a paying crop.

Buckwheat is mostly thrashed here now at the rate of three cents per bushel with the steam-thrasher, the farmer getting the grain to the machine, and furnishing coal for the engine. A small crop can be thrashed to advantage with the flail, or trodden out by horses, on the barn floor. It can be thrashed when drawing in the barn, or, if work is pressing, left until freezing weather. A neighbor thrashed over one acre last winter with his horses, rather than be to the trouble of getting a machine.

Buckwheat straw has a low feeding value, but it can be made to help out a ration by mixing with bran and oil-meal. It will be eaten readily by horses, cattle, and sheep, for a change. If not used for feed, it should be saved and used as an absorbent in stable and yard. The fattening properties of the grain are well known to most horse-jockeys; but the fat is of a soft nature. We fed a flock of lambs, for grain feed, a mixture of buckwheat and corn; and the result was satisfactory, both in wool and the gain in flesh. I believe it is worth one cent

per pound as a feed for sheep and poultry. We can buy the middlings at \$14 per ton, so the grain is sold and the middlings fed.

BUCKWHEAT AS A HONEY-PRODUCER.

I have said nothing about the honey-producing qualities of this plant, leaving it to the close-observing specialist to state how many pounds one acre will secrete. Buckwheat has never failed to give us a good yield of honey here, sometimes an average of 50 lbs. surplus comb per colony. Some years this comb honey has sold as low as six cents per pound.

Buckwheat has a use besides producing honey, grain, and straw. It will, if sown rather thick, subdue almost any of our common and troublesome weeds; and, if sown for a succession of years on the same piece, completely eradicate them. To raise a profitable crop of buckwheat, as well as any thing else, requires some brains as well as good soil.

CHAS. CHAPMAN.

Watkins, N. Y.

HINTS FROM ONE WHO HAS GROWN IT FOR 40 YEARS.

I have been growing buckwheat for forty years, on a small scale. I plow and drag the ground a month or more previous to seeding, which is, in our latitude, from the first to the middle of July. If the land is clean, sow the seed one heaping half-bushel per acre of the common varieties (I have not had sufficient experience in the Japanese to say how much seed per acre), cultivate it in, and thoroughly harrow. If it should be wet it won't matter whether the cultivating is done before or after. This cultivating is a new idea taken from an article of yours in GLEANINGS, on plowing in turnips. As buckwheat is sown about the same time, when the ground is usually dry and hot, I have no doubt but that is the way to do it. I put mine in that way last year, and I raised about three times as much per acre as my neighbors who harrowed in. The ground must be put in good condition, to insure a good crop. The time for sowing, no one can tell. It wants to be sown as late as possible, to escape frost.

NOT PAYING TO SOW EARLY.

My experience in sowing early for bees is that it doesn't pay. It is out of the proper season; blooms in the heat of summer; bees get but little out of it, and it doesn't make grain enough to pay expenses.

TO THRASH IT.

If the crop is small, lay boards on the ground; build a rail pen two or three feet high; cover over with rails; beat out with forks. I got my Japanese almost ruined last year in thrashing with a machine. It cracked the grains of the Japanese, but did not damage the other varieties. The most of the broken grains can be taken out with a sand-sieve, but I didn't find it out until I had nearly sold out.

R. ROBINSON.

Laclede, Fayette Co., Ill., May 6, 1889.

RAISING BUCKWHEAT IN TEXAS; THE OLD SETTLER AND THE LAWYER.

As GLEANINGS finds its way clear off into parts where some of the readers have never seen cotton grow, it may be equally interesting to them to know that it finds its way into parts where we have never seen buckwheat grow. I planted some a few weeks ago; and the other day, when I was busy with my hoe, weeding it out, an old settler (been in Texas 52 years) leaned over the fence and called out to me:

"Risien, what's the matter with your cotton? it's not getting off right somehow."

When I told him that it was buckwheat, he said it was the first he ever saw. You see that, when buckwheat first comes up—in fact, till it commences to bloom—it looks like cotton. This circumstance reminded me of two of our good citizens (one a lawyer and the other a merchant) who became enthusiastic about farming. Each one bought a large farm. The merchant planted him a little patch of buckwheat broadcast; so when it was up well, so as to attract the attention of the lawyer, "Well," says the lawyer, "you may as well give it up right now; who ever heard tell of planting *cotton broadcast*?" I am real glad that you have asked your readers for further information about it. I was just on the eve of suggesting it to you.

E. E. RISIEN.

San Saba, Tex., May 13, 1889.

TWO CROPS OF BUCKWHEAT IN A SEASON IN KANSAS.

I have raised several acres of nice buckwheat every year for my bees, for quite a number of years. I generally sow my seed about the first of May. By the 10th or 15th of July it is ripe. After it is cut and out of the way I cultivate and harrow the ground thoroughly, but do not sow any seed, for what is shelled out from the first crop will be plenty for seed. I have sown broadcast, and drilled in with a two-horse drill. I prefer the drill. As to harvesting, a self-rake machine is the best to cut it with. To cut with a mower, and rake it up, wastes too much. Last year I took my self-binder, left off the elevator canvases, and put on the bottom canvas; then I took out the roller that runs the lower elevator canvas; that let the buckwheat run off on the ground without elevating it. I had it in swaths six feet apart; that worked to perfection. If I had a small quantity I would thrash it out with a flail, fork, or a stick; if I had a large quantity I would have it thrashed with a machine. This year I shall put in 12 acres after the fall wheat is cut. I can not see any difference in yield here, between the first and second crop.

C. GEHRING.

Barnes, Washington Co., Kan., May 8, 1889.

BUCKWHEAT MORE FOR THE HONEY THAN SEED.

We scarcely ever sow a large crop of buckwheat, but we expect to sow a larger crop this season. We have been in the habit of sowing more for the honey than for the seed. We generally sow our seed the first of July, then the seed has ample time to get ripe before frost catches it. When the seed is ripe we cut it down and let it dry, then we drive along with a wagon that has a tight bed, and it is piled on the wagon, flailed out, and the straw is piled out on the field; it is then taken to a fan, cleaned, and put in bags or barrels. We have never had two crops of buckwheat in one season. This season our crop will be after the oats are cut.

Clermont, Ind., May 14, 1889.

T. TANSEL.

BUCKWHEAT IN PENNSYLVANIA.

I never raised 1000 bushels of buckwheat in one year. The most in one year was 402 bushels, machine measure, in 1887. Hundreds of bushels are raised around here. The most successful way with us is to plow the ground the last of May or first of June, and harrow it. From the 20th of June till the 6th of July we drill, using a little over $\frac{1}{2}$ bushel to the acre (it will take 3 pecks of Japanese), and from 75 to 150 lbs. of phosphate. Harrow the ground

again just before drilling, for buckwheat needs a good seed-bed, with plant food close to its roots. Phosphate shows more on buckwheat than any other grain. We cut with a reaper in the morning, or all day if cloudy. Sometimes we set up after the reaper, and sometimes leave it for two or three days. We set four rows of bunches together, to make it convenient to load. We thrash with a separator, using three teams to haul it to the machine. Two to four hands stay in the field to pitch it on the wagon, and one stays at the machine to help the driver pitch it to the machine. J. J. SHANOR.

Butler, Pa., April 24, 1889.

TWO CROPS IN A SEASON IN ALABAMA.

Two crops of Japanese buckwheat can easily be raised in one season by sowing the first early in the spring, as soon as all danger from frost is over. Early in the spring of 1887 I drilled about half an ounce of buckwheat, which yielded something over half a gallon of grain. This crop received one hoeing. A portion of this new grain was then sown about the first of July, and would have done well had the weeds not choked it out. This was in Northern Alabama.

The next year I sowed to "new ground" early, and by the 23d of May it was from 1 to 2 feet high, at which time it was literally cut to the ground by a severe hailstorm. As the plants were yet young and tender, many put forth suckers, which, with what survived, yielded well by oat harvest. A portion of this first crop was immediately sown to oat stubble, and yielded a handsome crop of well-matured grain before frost. This was in Northern Arkansas.

A. P. STAIR.

Wolf Bayou, Ark.

THE TIME TO SOW, DURING CHESTNUT-BLOOM IN NORTH CAROLINA.

We always sow our buckwheat when the chestnut-bloom is white, which in this latitude is commonly about the first of July, sometimes sooner and sometimes later. We have tried sowing in May, but with poor success. The hot June and July sun caused it to blast. By sowing during chestnut-bloom, the time of filling comes during the cool nights of August, and when bee-forage is scarce.

Dark Ridge, N. C., Apr., 1889. G. W. MCGUIRE.

RENDERING WAX WITH A PRESS.

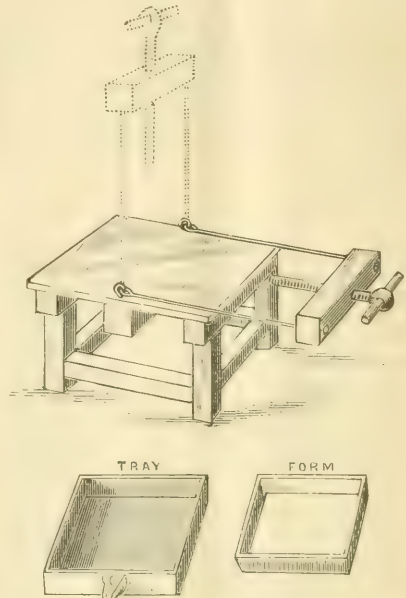
THE ADVANTAGES OF THE PRESS, ETC.

PERHAPS you may remember I have always advocated the Cary wax-press as the best thing to get all the wax out of combs, especially if they are old. If any one has 100 lbs. of wax to render, the press will almost pay for itself on old combs; and for cappings and scraps of new comb it has the advantage of speed, as two hands can make from 200 to 300 lbs. in one day, while an extractor is crowded to make over 20 lbs. a day, with much fussing and annoyance to the women-folks. The press also has this advantage, that the wax is left in solid cakes, while the extracted wax must be caked after making, incurring another fussing job.

Last season I made my wax and some for my neighbors, on an improved press, which gave good satisfaction. I send you drawings, so you can give it to your readers if you like.

The manner of using it is an improvement on the

method described in the A B C of Bee Culture. There all the combs are to be melted in the press-tank, which makes it very slow. My method is to melt the combs in another vessel, in my case a large kettle, out of doors, and then dip the melted combs and all that rises to the top of the kettle into the forms, and press at once. This makes the work continuous; for by the time one pressful is run out, another is melted in the kettle. Three or four pailfuls of water are kept in the kettle all the time; and when this once gets hot, wax soon melts in it. So much for the manner of working.



HATCH'S IMPROVEMENT ON CARY'S WAX-PRESS.

The improvement in the press consists, 1, in dispensing with the tank entirely, a tray with a "lip" taking its place, being only two inches deep; 2, the rigid side-pieces to the frame are hinged at the bottom so as to turn to one side out of the way while filling the press—two eyes, united at the bottom, making the hinge. In using the press in cold windy weather, an outside shell of boards to slip down over the "cheese" before pressing would be a help, for cold winds might cause the wax to congeal before running into the molds. Eighteen inches square is a good size for the tray, and 15 x 15 for the "forms." The form is made of $\frac{3}{8}$ -inch stuff, 4 inches wide. The racks are made of three-cornered top-bars. The cloths are of burlaps, such as bran-sacks are made of. Wire nails, $1\frac{1}{2}$ inches long, are used to pin the cloth together when building the "cheese." The screw is a common iron bench-screw, such as can be had at any hardware store. Material to make a press should not cost over \$1.75, or \$2.00 at the outside. I am sure, if you would make one and use it on old combs, especially on scraps having much propolis among it, you would never want to "fuss" with a wax-extractor again.

Ithaca, Wis., Jan. 28, 1889.

C. A. HATCH.

I heartily agree with you, friend H. Your machine seems to be a model arrangement, especially the device for letting the screw fall over out of the way.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points: First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbreviations are used—N., S., E., and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east-central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below

WE herewith present our first installment of statistics for 1889. You will notice that our correspondents are located in such a way as to cover the entire United States. The average date at which the statements are rendered is May 10. The questions to which they reply are as follows:

a. What per cent of your bees have wintered?

b. What per cent of the bees in your locality do you estimate have wintered?

c. What size of brood-frame is used most largely in your locality?

d. What frame do you prefer?

e. What per cent of an average crop of honey has been secured in your locality up to date, as nearly as you can estimate?

f. What are the prospects for a honey crop this year?

ALABAMA.

W. P. W. Duke, Nettieborough, S. W. 5-15.
a. 100; b. 85; c. L.; e. 80, taking 100 as standard for full crop. I did not lose a single colony in wintering.

J. M. Jenkins, Wetumpka. C. 5-20.
a. 95; b. 90; c. mostly none at all; d. Simp.; e. 100; f. good, good.

ARIZONA.

Jno. L. Gregg, Tempe, C. 5-8.
a. 98; b. 96; c. $1\frac{1}{2} \times 1\frac{1}{2}$ Gregg frame; d. I prefer this for the extractor; e. about 10; f. fine.

ARKANSAS.

W. H. Laws, Lavaca, W. C. 5-8.
a. 95; b. 95; c. Langstroth; d. L.; f. good. My 100 colonies contain less bees than ever before at this season of the year. Swarming has just begun; expect few swarms this season.

CALIFORNIA.

W. W. Bliss, Duarte, S. E. 5-11.
a. 95; b. 80; c. no standard size. Any and all sizes used, but we are rapidly changing to the L. and $\frac{3}{4}$ L. frame; d. $\frac{3}{4}$ L.; e. 20; f. very good.

Wm. Muth-Rasmussen, Independence. E. 5-10.
a. Probably 100. Not yet examined; b. probably 95; c. cross-wise L.; wide frames of same size, hold six sections; d. above; e. none; f. good.

R. Wilkin, San Buenaventura, S. W. 5-15.
a. 80; b. 85; c. L. universally; d. mostly; d. L. The form might be varied materially without loss only for the sake of uniformity in the community; e. 2; f. very good.

CONNECTICUT.

Lewis Sperry, Hartford. 5-6.
a. 100; b. have not heard of any losses; c. L.; d. L.; f. never knew it better. Bees are booming.

Daniel H. Johnson, Danielsonville. E. 5-6.
a. 83; b. 80 to 90; c. Langstroth; d. I use the L., but I sometimes think a shorter one would be better; f. Apparently good at this date.

R. M. Wilbur, New Milford. 5-15.
a. 80; b. 85 to 90; c. d. L.; f. very good indeed.

COLORADO.

Mark W. Moe, Denver. C. 5-9.
a. 100; b. probably 95 or more; c. d. L.; f. good.

FLORIDA.

J. L. Clark, Appalachicola. W. 5-13.
a. About 85; b. say 90; c. 1888; d. as above; e. full crop, extra quality.

John Y. Detwiler, New Smyrna. E. C. 5-6.
a. About 95; b. same; c. $9\frac{1}{2} \times 17\frac{1}{2}$; d. mostly; d. $11\frac{1}{2} \times 11\frac{1}{2}$ (Gallup every time; e. too early by 10 days to extract; f. present prospects fair for early or dark honey.

GORGIA.

J. P. H. Brown, Augusta. E. C. 5-17.
a. 90; b. 80; c. L. $17\frac{1}{2} \times 9\frac{1}{2}$; d. L.; e. a full average; f. fine.

Walter McWilliams, Griffin. W. C. 6-7.
a. 100; b. 80 to 90; c. L. (8 x 16 inches) and Simplicity; d. Simplicity for ever; e. 40, with splendid weather to secure the 60 per cent.

R. H. Campbell, Madison. C. 5-7.
a. 95; b. 90; c. L.; e. 100; f. good.

T. E. Hanbury, Atlanta. N. 5-7.
a. 100; b. 100; c. d. L.; e. 100.

IOWA.

Z. T. Hawk, Audubon. W. C. 5-6.
a. All; b. 95; c. L.; one apiary; Heddon; d. a frame $16\frac{1}{2}$ in. long, 7 in. deep, outside dimensions, with the Vandusen metal corners. It is a standing frame, fixed, and reversible; inside area, 100.4 sq. inches; f. excellent.

Eugene Secor, Forest City. N. 5-1.
a. 95; b. 90 to 95; c. d. L.; e. none; f. I see no reason for discouragement.

Oliver Foster, Mt. Vernon. E. 5-6.
a. All; b. 95; c. d. Simplicity L.; e. no honey yet; f. good.
J. W. Bittenbender, Knoxville. S. E. 5-10.
a. 99; b. 90; c. d. Heddon's; c. too early for this question; f. good.

J. M. Shuck, Des Moines. C. 5-7.
a. All; b. 99 at least; c. L.; d. my own, same size as L.; f. not good. Season well forward, but we need rain very much.

A. Christie, Smithland. W. 5-7.
a. 95; b. have recently returned from Colorado, and am not informed; c. d. L.; f. too early to say, but bees are in excellent condition.

INDIANA.

I. R. Good, Nappanee. N. W. 5-5.
a. 97; b. 80; c. $11\frac{1}{2} \times 9\frac{1}{2}$, and L.; d. new Heddon and L.; f. not very good. White clover is scarce, and we are having a drouth which is damaging what there is.

Mrs. A. F. Proper, Portland. E. C. 5-7.
a. All; b. 75; c. $11\frac{1}{2} \times 10\frac{1}{2}$ —adjustable and L.; d. adjustable; f. fair.

T. H. Kloer, Terre Haute. W. C. 5-8.
a. 95; b. from 95 to 100; c. L.; d. L. at present; e. none; f. We are now in the midst of a terrible spring drouth. Not a good rain all March and April. Winter has been rather dry. Nothing can grow. The white clover, which is more promising than I have seen it since 1883, is beginning to dry up. Unless we have rain very soon, there will be no white honey.

Joe. A. Burton, Mitchell. S. C. 5-9.
a. All; b. 95; c. d. L.; f. good if it would rain.

ILLINOIS.

Mrs. L. Harrison, Peoria. W. C. 5-9.
a. 97; b. 90; c. d. L.; e. no surplus; f. fair, but rain is greatly needed.

F. W. Goodrich, Bloomington. C. 5-10.
a. All; b. 90; c. $10\frac{1}{2} \times 12\frac{1}{2}$; d. crosswise L.; f. very poor.

C. Dadant, Hamilton. N. W. 5-9.
a. No loss; b. all; c. Quinby and Langstroth; d. Quinby; e. too early for answer; f. good for clover, if it doesn't get too dry.

C. C. Miller, Marengo. N. 5-4.
a. 99, but an unusual number of queenless colonies, so per haps only 90 are left; b. perhaps 90; c. d. L.; f. good, if rain comes.

Frank Howard, Fairfield. S. 5-8.
a. 100; b. 99; c. L., and a frame $12\frac{1}{2} \times 9\frac{1}{2}$; d. the latter; f. good.

KANSAS.

J. C. Stanley, Wichita. S. C. 5-5.
a. All; b. 98; c. d. L.; f. good.

J. B. Kline, Topeka. E. C. 5-6.
a. All; b. nearly all; c. Gallup, L.; d. Gallup; e. not any—too early; f. good so far.

KENTUCKY.

D. F. Savage, Hopkinsville. S. W. 5-8.
a. All; b. 90; c. d. L.; f. prospects very good.

Jno. S. Reese, Winchester. C. 5-5.
a. All; b. 25; c. d. L.; e. none; f. good—better than usual.

J. P. Moore, Morgan. N. 5-5.
a. All; b. 95; c. d. L.; f. fair. White clover is thicker than it has been for four years.

LOUISIANA.

J. W. K. Shaw, Loreauville. S. C. 5-9.
a. Starvation has reduced the colonies to $\frac{1}{2}$; b. $\frac{2}{3}$; c. L. frame, Root measure, and the American; d. the L. frame, always; e. a few colonies extracted to give room, in April and May last, gave 65 lbs. each; f. outlook is good.

MAINE.

S. H. Hutchinson, Mechanic Falls. 5-8.
a. b. About 80; c. d. L.; f. good.

J. Reynolds, Clinton. S. E. 5-6.
a. 97; b. 65; c. L.; d. don't know; use L.; f. good.

MASSACHUSETTS.

J. E. Pond, No. Attleboro. S. E. 5-13.
a. All; b. 75, I judge from advices; c. d. L.; e. too early to decide; f. prospects are good.

E. W. Lund, Baldwinville. N. C. 5-7.
a. 90; b. 90; c. can not tell all sizes used; d. $10\frac{1}{2} \times 13$; f. very good.

Wm. W. Cary, Colerain. N. W. 5-6.
a. 98; b. 95; c. about $\frac{1}{2}$ L.; rest, Cary-L., $10\frac{1}{2} \times 13$ inside; d. Cary-L. winter best, and breed up earliest; have about $\frac{1}{2}$ of each for years in my apiary; e. season not yet opened; f. good.

A. A. Sanborn, Westfield. C. 5-6.
a. 87; b. 90 to 95; c. d. L.; f. good.

MARYLAND.

Simon P. Roddy, Mechanicstown. 5-15.
a. 99; b. 95; c. $9\frac{1}{2} \times 15\frac{1}{2}$; d. the above size; f. good.

MICHIGAN.

A. J. Cook, Lansing. C. 5-5.
a. 95; b. 85; c. Gallup and L.; d. L.; e. none to speak of; f. good, I think.

H. D. Cutting, Clinton. S. E. 5-6.
a. 99; b. 80; c. $9\frac{1}{2} \times 13\frac{1}{2}$; inside; d. $10\frac{1}{2} \times 14$, outside, but I am using the L.

James Heddon, Dowagiac, S. W. 5-6.
a. 85; b. 85; c. L., 8½x17½; sold by Heddon; d. the close-fitting Heddon frame, 5x18; e. no surplus yet, and very small gathering for brood-chambers; too cold; f. only fair.

George E. Hilton, Fremont, W. 5-6.
a. 95; b. 95; c. d. L.; f. if we get the latter rains, good; too dry at present.

MINNESOTA.

N. P. Aspinwall, Harrison, C. 5-7.
a. b. All; c. American; d. American; no experience with any other; f. extra good.

D. P. Lister, Lac qui Parle, W. C. 5-7.
a. 95; b. 75; c. d. L.; f. so far, conditions of bees considered as well, I think it good.

W. L. Urie, Minneapolis, E. C. 5-7.
a. 98; b. 95; c. L., length of top bar, inside measure, 15½; deep, out, 10; inside, 9½. It is called Langstroth, but it is one inch deeper than the regular size of Langstroth; d. I prefer this size; f. I never saw it better than now, since I have been in the State; hive full of bees, and working rapidly on fruit-bloom.

J. H. Johnson, Fairmont, 5-16.
a. All; b. no complaints; wintered well; c. d. L.; f. fair.
A. F. Bright, Mazeppa, E. 5-7.
a. 96; b. about 90; c. d. L.; f. not very good; too dry.

MISSISSIPPI.

Oscar F. Bledsoe, Grenada, N. 5-12.
a. About 95; b. very near the same; c. d. short L.; e. fully 100 or over; more clover honey than I ever knew to date; f. excellent. I am becoming more confident each year in bee-culture, here in the South, as a paying pursuit.

MISSOURI.

S. E. Miller, Bluffton, E. C. 5-11.
a. 90; carelessness was the cause of loss; b. 90; c. L., or about the equivalent; d. do.; f. very good; have had a very dry spell, but are just now having a splendid rain.

Jno. Nebel & Son, High Hill, E. C. 5-6.
a. 98; b. 98; c. d. L.; f. good for white clover if it rains soon. At present it is very dry for the growth of vegetation.

Chas. L. Gough, Rock Spring, E. C. 5-11.
a. 100; b. about 60; c. none only what I have introduced. I use a frame 11½ wide, 16 deep, and one 11½x11½; have one L. hive; like it well; d. I prefer 11½x11½ for storing up, for extracted honey; e. extracted part of 4 stands May 10; got about 50 lbs.; f. good at present. Bees are booming on white clover; almost too dry at present writing; have one swarm; but no queen came out, and they went back.

James Parshall, Skidmore, N. W. 5-7.
a. 95; b. 95; c. d. L.; f. prospects are very promising.

NEBRASKA.

F. Kingsley, Hebron, S. C. 5-8.
a. b. 80; c. d. L. brood-frame; f. never better.
A. E. Maley, Auburn, 5-12.
a. 100; b. 90; c. d. L.; f. good.

J. W. Porter, Ponca, N. E. 5-6.
a. 98; b. 80; c. L., 17½x8½; d. L.; f. the prospects are favorable, but there is not as great difference in seasons in respect to honey crop south of us as is complained of in more eastern States.

NEVADA.

E. A. Moore, Reno, W. C. 5-10.
a. About 90; b. about 75; c. Use L. frame; all others, box hives; hard to tell size; f. good.

NEW HAMPSHIRE.

C. E. Watts, Rumney, C. 5-11.
a. About 84; b. nearly all; c. I have some L. frames and some 10x14, and there are some others used; d. all things considered, the L.; f. the prospect for a honey crop is good.

NEW JERSEY.

J. D. Coles, Woodstown, S. W. 5-10.
a. b. 75; c. old-fashioned box, 10x10x20; d. L.; f. good.
Watson Allen, Bernardsville, N. C. 5-8.
a. 93½; b. 85; c. d. 10x15; f. good for white clover.

NEW YORK.

P. H. Elwood, Starkville, C. 5-10.
a. 99; b. 95; c. L., 10½x16 inside; d. new quincy, Hetherington size, 10½x16; f. full average.

H. P. Langdon, East Constable, N. E. 5-7.
a. 90; b. 75; c. American, and but few of those; d. Root's Simplicity; f. first-class.

Frank Boomhower, Gallupville, E. C. 5-6.
a. 98; b. 90; c. about 10x15; d. L.; f. more than good.
G. M. Doolittle, Borodino, C. 5-6.
a. 98; b. 95; c. d. Gallup; f. fair.

NORTH CAROLINA.

Abott L. Swinson, Goldsboro, E. 5-8.
a. 95; b. 90; c. L., when any is used; d. L., e. ½; f. very good.

OHIO.

Dr. G. L. Tinker, New Philadelphia, N. E. 5-6.
a. 89; b. 85; c. the New York 7x17; d. 1x17; f. the prospect could not be better at this time.

Chas. F. Muth, Cincinnati, S. W. 5-7.
a. All; b. 75 or more; c. d. L.; e. none yet so far; f. most excellent.

Dr. H. Resse, Delaware, C. 5-9.
a. 60; b. about 60; c. d. L., f. first rate.
A. B. Mason, Auburndale, N. W. 5-4.
a. 100; b. 95; c. d. L.; f. good.

OREGON.

George Ehlers, Baker City, E. 5-9.
a. 20; b. 15; c. d. L., f. poor.
J. D. Rusk, Milwaukie, 5-11.
a. 90; b. 95; c. d. L.; f. good.

PENNSYLVANIA.

Thos. C. Davis, Idlewood, C. 5-8.
a. 90; b. about 90; c. d. L.; e. honey is coming in rapidly now; f. the prospects are excellent.

C. W. King, Emlenton, N. W. 5-7.
a. 99; b. 90; c. L.; d. 10½x14; f. good.
S. W. Morrison, Oxford, S. E. 5-6.
a. 100; b. 75; c. d. L.; e. 100, from cherry and apple blossom; f. very good.

Geo. A. Wright, Glenwood, N. E. 5-7.
a. 60; b. 90; c. L.; d. I'm stuck; f. fair. My out-apiary, worked for extracted honey, and wintered in Simplicity hives, is gone by the board; home apiary, worked for comb honey, and wintered in chaff hives, is in fine condition.

RHODE ISLAND.

Samuel Cushman, Pawtucket, 5-1.
a. 90; b. 60 to 70; c. L.; d. L. frame, Hoffman style; f. bees are doing well, and prospects for clover are good.

A. C. Miller, Providence, E. 5-6.
a. 75; b. 95; c. L.; d. L., after using 5 other kinds; f. unusually good.

SOUTH CAROLINA.

W. J. Ellison, Stateburg, C. 5-19.
a. 100; b. 95; c. d. L.; e. just begun to extract.

J. D. Foshee, Cornelia, 5-7.
a. b. 100; c. d. L.; e. too early to estimate; cold east winds have retarded crops. The weather has improved, and honey is coming in rapidly now.

H. T. Cook, Greenville, 5-6.
a. 100; b. from 0 to 100; c. L.; d. have tried no other; e. too early to say.

TENNESSEE.

W. H. Greer, Paris, N. W. 5-7.
a. b. 90; c. d. L.; f. very good.

C. C. Vaughn, Columbia, C. 5-9.
a. 95; b. 90; c. d. L.; e. 50.

TEXAS.

L. Stachelhausen, Selma, S. C. 5-9.
a. 98; b. 95; c. L.; e. no honey as yet; f. good.

W. A. J. Beauchamp, Orange, S. E. 5-10.
a. About 95; b. about 80; c. 11½x11½; d. about 8½x12½. This size we think most convenient for all purposes here, e. 95 to 100 to date.

J. P. Caldwell, San Marcos, S. W. 5-9.
a. b. 100; c. L., 12½x8½; d. I prefer the L.; e. we never have super honey until June.

J. E. Lay, Hallettsville, S. W. 5-9.
a. b. All; c. d. L.; e. none yet; f. fair.

VERMONT.

A. E. Manum, Bristol, W. 5-7.
a. 90; b. 82; c. the Bristol frame, 12 inches long by 9½ deep, inside measure; d. the Bristol frame; f. good.

Howard J. Smith, Richmond, N. C. 5-9.
a. b. About 75; c. d. L.; f. good.

VIRGINIA.

J. W. Porter, Charlottesville, C. 5-9.
a. 70; the loss was from neglect; b. 70, same cause; c. d. L.; e. only brood supply; f. good.

H. W. Bass, Front Royal, N. 5-10.
a. 85; b. 75; c. L.; d. L. in depth, but shorter; f. very promising.

James E. Duvall, Bellfair Mills, E. 5-13.
a. 90; b. about the same; c. d. L.; e. no surplus yet.

J. C. Frisbee, Suffolk, S. E. 5-6.
a. 90; b. 80; c. 15½x8½; d. L., because it is standard; e. none; backward season; bees are now working finely; f. prospects are just opening favorably.

WEST VIRGINIA.

J. A. Buchanan, Holliday's Cove, N. 5-6.
a. 100; b. 25; cause of loss, honey-dew stores; c. d. L., f. very fair.

Jno. C. Capehart, St. Albans, S. W. 5-10.
a. 90; b. 82; c. the Bristol frame, 12 inches long by 9½ deep, less, prospects fair.

M. A. Kelley, Milton, S. W. 5-1.
a. 85; b. about 90; c. Adair, American, and quincy; f. fair to good.

Will Thatcher, Martinsburg, W. C. 5-7.
a. b. 100; c. d. L.; f. good.

WASHINGTON.

J. H. Goe, Mossy Rock, 5-12.
a. b. About 90; c. there are so many different sizes used I can't answer definitely; d. L.; f. splendid.

W. W. Maltby, Port Angeles, 5-13.
a. 86; b. 95; c. Adair; d. Adair or Gallup; f. good.

WISCONSIN.

S. I. Freeborn, Ithaca, S. W. 5-7.
a. 90; b. 85; c. d. L.; d. have 100 L., 200 Gallup hives; f. fair, if it would rain.

E. E. Tongue, Hillsboro, 5-14.
a. The loss is about one colony out of 80; b. 79 to every 80; c. d. L.; f. unless we get rain, it will be poor.

E. France, Platteville, S. W. 5-9.
a. 95; b. about 90; c. enlarged Metcalf frame, size 12 inches wide, 10 high; d. enlarged Metcalf; f. fair, with favorable weather. Bees are very strong for this time of year.

Joshua Bull, Seymour, E. 5-7.
a. 75; b. about 75; c. L.; d. I am not fully prepared to decide, I am using the Jones, Langstroth, and the new Heddon; I get good results with each of them; f. good.

Frank McNay, Mauston, C. 5-6.
a. b. 90; c. d. L.; f. fair.

George Grimm, Jefferson. S. E. 5-6.
a. 90; b. 80; c. d. L.; f. very good.

WYOMING TERRITORY.

G. G. Mead, Ferris. S. 5-17.
a. 75; b. no other bee keepers here; c. d. L.; f. good.

A summarized averaged statement for the entire United States, we find stands as follows:

a. Of the bees owned by the special reporters, 91½ per cent have wintered.

b. Of the bees in the localities of the reporters, 83¾ per cent have wintered.

c. 75 per cent of the localities reported are using the L. frame exclusively, and the others use odd sizes, no one frame in particular.

d. The frame used by the reporters themselves is about the same as stated in c.

e. Where honey has been coming in, a full average has been secured up to date.

f. The prospects throughout the United States are universally good—never better.

Now let us go back and see what the statistics mean. To question a we find the average of 91 per cent is considerably better than the average for about the same date for last year, the ratio standing 91 to 84; but remember this rather has reference to those who reported on *their own* bees. The percentage of loss for the *localities* (bee-keepers, good, bad, and indifferent), is also much less this year—the ratio standing 17 to 33 in favor of 1889. Observe that the reporters (who are in most instances the best and most successful bee-keepers we could select for the localities) have had much better success than the mediocre bee-keepers—those who can not afford to own a good text-book or take a good bee-journal. The first-mentioned class lost only 9 per cent; the last mentioned lost 17 per cent. This point was clearly brought out in the statistics for last year. The answers to question c prove conclusively that the Langstroth frame is the universal standard throughout the length and breadth of our country. There are three times as many L. frames, according to the reports, as *all the rest of the frames put together*, odd sizes included. If we eliminate the frames used by only one or at most two or three bee-keepers in certain localities, there would be probably ten times as many of the L. pattern as of any other. We were a little surprised that not more of the Gallup or the American frames are in use. We were surprised, also, to see that so few square frames are in use. The universal use of the L. frame, north as well as south, proves, if it proves any thing, that, all things considered, that is the best frame for the masses. It proves, also, that bees winter just as well in a shallow frame (like the L., for instance) as in a deep or square frame. If any one can see any *better* results in wintering, from those who report using the square or nearly square frame, we must say we have been either awfully careless in looking over the reports, or that our eyesight is pretty poor. If the square frame will winter bees better, the reports ought to show it; but they don't.

Perhaps we should say, that although the reports do not show it, yet many letters we are receiving say that the yield from fruit-bloom has been unusually large.

ON THE BANK OF THE MISSOURI.

SOME OF THE THINGS I MISSED DURING MY TRAVELS.

WE can hardly express in words the pleasure we have taken in reading your travels in California and the West. Our father has also been very much interested in said part of GLEANINGS. He does not read the part pertaining to bees, as he is not very much interested in them. We consider your very plain and interesting description of your travels worth many times the subscription price of GLEANINGS; and the illustrations are simply grand. Why, to read your writings and look at the illustrations makes one feel almost as if he had been with you and seen it all. We have also read with some amusement the complaints brought against you for passing by some of the bee keepers; but we did not know that we had any cause for complaint until reading your concluding remarks, where you refer to the Missouri River. We only then realized that you had passed within sight of our home; that is, we can see the cars in winter, as the Missouri Pacific R. R. runs within two and a half miles of this place, and we know that, if you had been looking north across the river, just after passing a small place called Morrison, you would have admired the beautiful bluffs within three-fourths of a mile east of here, even if you had seen scenery more grand during your travels. Your remarks about the Missouri River are very interesting to one acquainted with that grand old stream. Sure enough, it is like a meadow brook in the way of cutting away its banks. It is not an uncommon occurrence for it to cut in an eighty-acre farm, worth four or five thousand dollars, in a very short length of time. You are right, too, about the land being very fertile; and the islands you refer to are, many of them, or portions of them, cultivated, and produce fine crops while they also furnish splendid pasturage for cattle. Of course, they are overflowed some years, and those farming them lose their labor; but on an average it pays well to cultivate them. On these islands near here is where our bees get most of their early pollen, and this year we think they got some honey from the willows.

Now, friend Root, while we could hardly expect you to spend your time in calling on such little bee-keepers like ourselves (not big guns), we should have enjoyed a visit from you very much; and had we known when you passed here we should have been pleased to meet you at some station where your train stopped, even if only long enough to take you by the hand and exchange a few words. Now, when you start on your next trip, let your friends know beforehand what route you are going to take, so that they may be prepared to pick you up when you do not know just where to look for them. Bluffton is an inconvenient place to get to; but please remember, if you ever get as near here again as you have been, and think you can spare the time to stop off, we shall try hard to make things pleasant for you here, and assure you a hearty welcome in our father's old log house on the bank of the Missouri.

Bluffton, Mo., May 16, 1889. MILLER BROTHERS.

Dear friends, it is not the big guns only I love to visit. It is true, I like to see them, for, as a matter of course, they have many short cuts and improvements which you

could not expect to find among the small bee-keepers. But the most real enjoyment I have found in traveling has been, as a rule, in meeting the friends on small apiaries and in humble homes. I should enjoy extremely, making you a visit. I remember pretty nearly the locality you describe; and what you told me makes me still more enthusiastic in regard to this matter of restraining our great rivers. We do not want "prohibition" in this matter, but we do want to know how to "regulate and restrain." I feel satisfied, from what I could see from the car window, that valuable farms—yes, thousands upon thousands of acres—were going to waste because of our helplessness in this matter. Why, the very essence of fertility of our best farming lands is being continually carried away and spread over these immense flats, pushed one way and then another by the water, so it is of no value to any one. I should not be surprised if some of that bottom land were so rich in fertility that not even stable manure or chemical fertilizers would make it do any better.

SMALL, BLACK, SHINY ROBBER-BEES.

ARE THEY HONEY-BEES, OR A WILD BEE.

MR. E. H. CALLINGS, of the Hamilton Co., Indiana, Bee-keepers' Association, writes me that, at their recent meeting, several members reported serious robbing from small, black, shiny, almost hairless bees. He says they come in swarms to the victims of their greed, and seem to meet no resistance. They are doing very serious damage. Our society asks that you give us your opinion of these depredators in GLEANINGS, that it may be read before our society at its next meeting. Several have tried to hunt these marauders to their holes, in hopes to exterminate them. "We know that you are very busy, but society always presumes one like you can always find a *little* more time to do one more kindness."

These are not social but solitary bees, I presume of the genus *Andrena*. I have often heard like complaints, but never before has any such report as this come to my notice. Usually it is said that they are too few to do any serious damage. Now it is asserted that they come in swarms. I think it is easy to explain this. The past warm winter has been very favorable to insect-life, so that such insects or bees, instead of dying off by the thousands, as is usually the case, nearly all live through. I have noticed that wild bees are unusually abundant on fruit-bloom this spring.

These bees are solitary, and make their cells either in hollow stems or else in earthen tunnels. Thus to hunt these foragers to their holes would be like seeking needles in a straw-stack. Like our common honey-bees, these wild bees rob—at least so I think—only when there is no nectar in the flowers. Thus, I presume in Indiana they are stealing just after the prosperous season of the fruit-bloom. Bees are very much like men—they find it hard to brook a famine after prosperity has smiled upon them for a season, and so they often take to larceny. It is very difficult to suggest a cure for this evil. The bees are small, and can not be stopp'd out except as we close the bees in. Again, for

some strange reason the bees seem to bear their enemies no ill will, but almost welcome these bee-tramps; so we can hardly shut them out by nearly closing the entrance. As these *Andrenæ* pilfer only when the harvest is past, in case they are too serious it may pay to close the hives; and if the weather is not too warm, let the hives remain on their stands, else carry them to the cellar. There is a silver lining to this unwelcome cloud; and that is, it soon blows over. So far as I know, these raids are soon past. Either the robbers are smitten with compunctions of conscience, or else, and more likely, they find fresh nectar in the flowers, where to rob is to do a kindness.

I am sorry Mr. Callings did not send me some of the bees, then I could know just what they were.

Agricultural College, Mich.

A. J. COOK.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SUGAR VS. NATURAL STORES; COMPARATIVE EXPERIMENTS ON, AND THE RELATIVE COST OF EACH.

FRIEND ROCT:—I send you the result of an experiment which I tried, to ascertain the comparative value of honey and sugar syrup as winter feed for bees.

I gave two hives empty frames, and weighed them; then I fed each 27 lbs. of syrup, made in the proportion of 2 of best granulated sugar to one of water. As soon as they had the syrup stored in the combs they were again weighed. On the same day, Oct. 22, two other hives having all natural stores, and, to all appearances, of the same strength as the first two, were weighed. They were all weighed Nov. 16, and again April 27th, when fruit-bloom had just opened, and this is the record:

We will call the sugar-fed hives A and B, and the hives having natural stores C and D. Oct. 18, A and B having empty combs, each weighed 40 lbs.; C and D 58 and 62½ lbs. respectively. Oct. 22, after A and B had their feed stored in the combs, they weighed 62 and 61 lbs. respectively; the former having lost 6 and the latter 5 lbs. in storing. Nov. 16, A weighed 56 lbs. and B 56½, while C weighed 55 and D 58½ lbs. Thus, between Oct. 18 and Nov. 16, A lost 11 lbs., B 10½, C 3, and D 4. April 27, A weighed 42½ lbs., B 40, C 37, and D 42. Thus, for the whole time, A lost 24½ lbs., B 27, C 21, and D 20½.

Although my experiment was upon too small a scale to furnish a very reliable rule, so far as it goes it shows that 25 lbs. of syrup, made in the proportion of 2 of sugar to one of water, is equal to 20 of honey. With sugar at 9 cts., the present price, and honey at 7½, the value of the 25 lbs. of syrup would be just equal to the 20 lbs. of honey; and unless bees winter better on syrup than they do on honey, the labor of extracting honey and making and feeding the syrup would be just so much time and labor wasted.

J. MCNEIL.

Hudson, N. Y., May 6, 1889.

Friend M., I don't think your experiment is as conclusive as you seem to put it. A colony that has a certain number of pounds of stores sealed up in their combs, all ready for winter, is in better condition—that is,

they will survive longer on this quantity of stores, than if this sealed honey were unsealed stores; at least, that is my opinion after having done considerable taking away the honey and giving sugar stores instead. Now, I do not mean to say that natural stores will go further than sugar, but, on the contrary, if the colony has stores of sugar syrup sealed up in good shape for winter, it would answer just as well or even better than the natural stores. The point is, that it costs a good deal to get any kind of stores, well ripened and sealed, up in the combs. In working some little time to get a colony of vicious hybrids to accept a different queen, they uncapped their honey and gorged themselves with it, and then put it back in their combs so many times that they nearly used up in a couple of weeks what would otherwise have lasted them all winter.

IS IT TRUE?

I inclose a clipping from the *New York Evening Post*, which I thought might be of interest to you.

YOUNG G. LEE.

Charlotte Harbor, Fla., May 13, 1889.

CURIOUS DISCOVERY OF OLD HONEY.

A remarkable discovery has just been made at the Cathays Yard of the Taff Vale Railway Company. A large elm-tree, grown in Gloucestershire, was being cut up into timber, when, right in the very heart, a cavity measuring 8 feet by 7½ inches in diameter was discovered almost completely filled with a comb of the honey-bee, together with a squirrel's skull. No means of access to the hollow was discoverable, neither was decay anywhere apparent, and around the cavity itself no less than fifty "rings," each ring denoting a year's growth, were counted, the outer bark, too, being without a flaw. The hollow was of uniform size throughout, and presented the appearance of having been bored with an auger, and, great though its dimensions were, it was practically filled with the comb, proving that the bees must have been in possession for several years. Empty combs of the queen-bee also showed that they had swarmed. How the bees got there can only be guessed, but it is surmised that a squirrel once occupied a decayed hole in the tree, cleared away the decay, occupied the cavity as its home, and there died. Then the bees entered into possession and filled the hole with comb, when by some means the entrance, which must have been small, became stopped, the large quantity of grub and fly being taken as demonstrative that the nest was not voluntarily deserted. Then for fifty years the growth of the timber went on. The entrance being absolutely obliterated and the hole being hermetically sealed, the comb was preserved from decay for half a century, to be found at last in the way described. The find is of the greatest interest to naturalists. *Pall Mall Gazette*.

There is nothing particularly new in the above. I believe that wood-choppers meet with many such cases, although the trees may not be as large and as old as the one mentioned above. The fact that they found brood in these old combs does not by any means indicate that the bees were stopped in. Where they starve out in the spring, there is almost always more or less brood left in the combs.

CHUNK HONEY, AND HOW IT SELLS.

I don't like sections. They are too much trouble, and too uncertain about getting filled. I like frames best for comb honey. I cut out what will do to eat, then extract the rest, after which I set the frames over a nucleus and let the bees clean them up. I now fill in with foundation the place

where I took out the honey. This is the way we have been managing ours the last three years when we had honey. We put in buckets and jars, and then pour in extracted honey. It sells before cool weather, and it goes off nicely this way. I think earthen jars the best yet to store honey in. We can weigh the jar, and then put the weight on a piece of paper, paste it on the jar, and then weigh honey and all together, and then wax a cloth and put it over the jar, tie it on with a string, and it will not leak or spill.

I like GLEANINGS well, Our Homes especially. Mr. and Mrs. Chaddock do look funny trying to get into a bee-hive at the side. Why not go in at the top? How are the carp getting along? I have not heard from them for some time. A. R. DIOK.

Hettick, Ia., Feb. 8, 1889.

The plan you give is old and well known; but there are people, and I presume there are communities, that would pay more for honey in a stone crock than for that stored in any other way. In fact, it has been suggested that honey tastes better when taken from an earthen jar than when stored in glass, tin, or any thing else. I should think the jars would be cumbersome to lug around.

The carp are getting along nicely, except that we are still troubled with brook minnows getting in among them. I suppose that, if I had some competent person to take charge of the carp-pond, just as we have Ernest and Mr. Spafford to take charge of the bees, then I could succeed in banishing the minnows from our pond. The only harm they do is to destroy the largest part of the eggs that the carp lay, and fill the pond with their own worthless selves.

IS ALSIKE A CROSS OF WHITE DUTCH?

As there was considerable discussion in GLEANINGS some time back concerning alsike clover, as to whether it was a cross between the red and white, I have proved to my satisfaction that it is. About five years ago I sowed some seed I got of A. I. Root. The second year, it bloomed out as nice alsike as I ever saw; the third year was dry, and it did not do much. The next year there was not a head of alsike to be seen—it was every bit white Dutch, and I know there had never been a seed of white clover on the ground. Year before last I sent to W. M. Plant, St. Louis, and got a peck of alsike and sowed it. Last year it was as fine alsike as I ever saw. This spring it has all bloomed out white Dutch—not a stalk of alsike, and there never was a bunch of white clover on the ground before last spring. I sowed five acres more alsike, and it has bloomed out as fine a set of white Dutch as I ever saw. I think that should be evidence enough; at least, I am satisfied with it. There is but one chance left for it to prove to be genuine alsike, and that is this: I pastured each piece, that I had sown to alsike, all winter and till in the spring. What have you got to say about it, friend Root?

CHAS. L. GOUGH.

Rock Spring, Mo., May 14, 1889.

The able professors of the Michigan Agricultural College, if I am not mistaken, declare that alsike is not a hybrid. If the seed you sowed contained no white clover at all, the phenomenon you mention is a mystery,

especially if, as you say, white clover does not grow just as thick on other plats where no alsike was sown. Alsike does not hold its place on any soil as the white clover does—at least, so far as my information extends; but I can not understand how alsike should by any possibility change to white-clover. I do not think that pasturing would affect the result either way. Will Prof. Cook please give us his opinion on this matter?

WINTERING SUCCESSFULLY IN A REPOSITORY REEKING WITH MOISTURE.

I built a cave, on Doolittle's plan, during October, 1888, except the shingle roof. I had none, and the walls of the cave were clay only. I had three doors to said cave, but no ventilation whatever. I put 7 colonies in the same, Nov. 6; and although the moisture was very dense indeed, they wintered splendidly, being in the cave only 135 days. My first swarm issued on the 7th inst., a fine large one too. I think cellar wintering can be made a *success*, even in a clay bank. We have a fine prospect for a good honey harvest for this season. White clover is very abundant indeed. C. W. VANHOUTEN.

Smithfield, Ill., May 10, 1889.

S. F. NEWMAN ON CELLAR VERSUS CHAFF WINTERING.

Ernest did not quite understand me when we were talking about different methods of wintering. If I were going to winter inside I would adopt friend Boardman's method of "no bottoms," but I do not prefer inside wintering by any means. My bees never winter as well inside as they do in your chaff hive. I have 50 colonies that are strong enough to swarm to-day, and would swarm if I had not right along given them combs in the upper story. If I ever get time I will write you what I think about the "winter problem," and of my experience and success in reference to it.

Norwalk, O., May 15, 1889.

S. F. NEWMAN.

Thanks, friend Newman. I accept the correction.

HOW MUCH HONEY WILL ONE ACRE OF CLOVER PRODUCE?

Somewhere in your writing you say one acre of clover will support ten colonies of bees. Will you please be kind enough to state, if one acre of clover is properly grown, and one colony of bees, properly managed, forages solely upon it, how much surplus honey ought this one acre of clover to produce?

SUBSCRIBER.

I do not remember the statement you mention. If I made it, I think I must have said "probably," for it is a very hard matter to determine how many colonies an acre of clover will keep busily employed. If we could get out on a desert, and keep our clover field going by irrigation, then we might get at it. I have very little idea how much honey an acre of clover might produce; but I will hazard a guess, that it might give 10 pounds of honey a day for, say, 10 or 15 days; perhaps it might give half that quantity for 10 or 15 days more. If any of the friends who have considered this matter feel like criticising my answer, I should be glad.

UNCAPPING-CANS; ARE THEY NECESSARY?

I have bought about 50 stands of bees this spring. I am thinking of running about that number for extracted honey, three miles from home. I should

like to have some of the friends tell, through GLEANINGS (if they can in time for this summer's crop of honey), how they manage the cappings—what they catch them in, and what is the best way to get the honey out of them, without buying an expensive uncapping-can like Dadant's? Or is that the cheapest, all things considered?

GRAPEVINES, CARE OF.

How will grapevines do in the apiary when the ground is set to white clover or blue grass, if the ground is kept dug up 12 to 18 inches around the vines, leaving the vines 6 feet apart each way? Or should the ground be mulched all over?

Bedford, Ia., May 6, 1889.

J. S. WILLARD.

An uncapping-can is by no means necessary. It is only a convenience. If you do not wish to go to too much expense, you might set a cheap metal strainer on top of a dish-pan or large pail—just such an arrangement, in fact, as we sell for our cheap wax-extractor.—Grapevines will do very well as you suggest. They should have a distance apart of eight feet or more, instead of only six. The grass and weeds should be cut away from around the vines for as much as two feet. Mulching will answer every purpose.

FRIEND BOARDMAN EXPLAINS A LITTLE MORE UPON HIS METHOD OF CONTRACTION.

Friend Ernest:—Perhaps I ought to make a little explanation in regard to my method of contraction of the brood-chamber during the honey-flow.

Putting new swarms, whether natural or artificial, on empty frames, constitutes a very perfect and natural mode of contraction, and is usually all that I desire for a period of 20 to 25 days, where the queen is able to pretty nearly keep pace with the comb-building; but if the comb is built considerably faster than the queen can fill it with eggs, I sometimes cut it back to about the capacity of the queen to fill, and use the pieces, thus cut out, in sections instead of foundation. I cut it back only in new colonies, never in the old ones. My new colonies on the old stand give me all the surplus. I see in the account of your "Rambles" you leave this a little indefinite.

Thanks. My memory was not quite clear upon this point, and so I did not dare to enlarge upon it very much. Your explanation makes it more satisfactory.—Friend Boardman replies further:

TWO QUEENS IN ONE COLONY.

I have made this season what is to me quite an important discovery. Of what real practical value it may prove, I am yet not quite ready to decide. It is, using two queens in one colony, keeping both in active operation for an indefinite time. I have several such colonies that have been running under this dual administration since the beginning of the season (6 or 8 weeks). I do not know yet how long it will continue. I think, until swarming time.

H. R. BOARDMAN.

East Townsend, O., May 7, 1889.

I suppose your discovery is, that bees will, a good many times, tolerate two queens at the same time. Under some circumstances, I know that this can be done; but at other times it does not seem to work at all. In fact, a good many of us have had expensive experience in trying to introduce queens where there was one already in the hive.

A queen pretty well along in years will almost always tolerate one of her daughters, and both lay right along together. Aside from this, we have not found it much of a success.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all questions, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

FROM 88 TO 150, AND 4500 LBS. OF HONEY.

LAST spring I commenced with 88 colonies, about 10 queenless. I built them, up but it took all the season. I increased to 150 colonies; ran 100 for extracted honey and 50 for comb honey. Extracted, I got 4200 lbs.; and from the 50, 300 lbs. I sold the extracted at an average of about 8½ cts. per lb.; the comb at about 11. Cash expenses, about \$15.00. I went into winter with 150 colonies; came out with 149, none queenless. I wintered in single-walled hives, out of doors. I sold some; will commence with 138 this year.

R. ROBINSON.

Laclede, Ill., May 6, 1889.

My son-in-law raised 170 lbs. of Japanese buckwheat from 2 lbs. bought of you last spring. We think it very good.

E. B. GLAZIER.

Dryden, N. Y.

ABSCONDING WITHOUT CLUSTERING.

I can put in my evidence, that two swarms from this neighborhood went direct from their hive entrances last summer, for the woods. W. N. ROOT.

Assumption, Ill., May 6, 1889.

DRONES FROM DRONE-LAYING QUEENS.

1. Are drones from a drone-laying queen capable of fertilization? 2. If so, are they as good as drones from a fertile queen?

ANDREWS & LOCKHART.

Pattens Mills, N. Y.

[1. Yes. 2. We think not.]

ONE BUSHEL FROM SEVEN OUNCES OF JAPANESE SEED.

I purchased seven ounces of Japanese buckwheat last season from you, and sowed it and got one bushel of fine buckwheat from it. I think that is pretty good. My bees seem to work on it almost constantly while in bloom, and it seems to be adapted to this country.

J. S. TURNER.

Formoso, Kan., May 15, 1889.

BOARDMAN'S REPOSITORY.

I am quite interested in Boardman's repository. I have been pulling the bottom of my hives all off every year. I have become convinced that the common entrance is not large enough, for the bees become clogged, and damage the colony. He hasn't said how high from the ground the first row of hives is; nor how he ventilates the first row. My colonies are reduced down to about 110 this year.

Portville, N. Y.

F. ROULO.

ORANGE-BLOSSOM HONEY.

Referring to page 323 of GLEANINGS, I find: "Orange-blossom honey, the first extracted honey of the season," which was taken March 21st. While visiting Prof. Webster, of Lake Helen, Fla., I assisted in extracting honey three days previous; viz., March 18, which was the second extraction.

The sources were orange-blossom and andromeda. The crop in that locality is half harvested. In the mangrove district, honey is coming in slowly, barely sufficient for brood-rearing. Grape and bay will be open in a few days. Bees are in good condition.

New Smyrna, Fla.

J. Y. DETWILER.

A SUGGESTION ON THE DOVETAILED HIVE.

You can get rid of the strips of tin you nail under the bottom of the super for the section-holders to rest on in Dovetailed hive, by making the end pieces of the honey-board wide enough for the holders to rest on.

W. P. DAVIS.

Hyatt, N. C., May 10, 1889.

[Your plan is very good, so far as it goes; but what are you going to do when you tier up? You would have to use a honey-board between every super, and that would be too expensive. See?]

WHY ARE THE DRONES CARRIED OUT?

Two of my best Italian colonies are dragging out drones at a rapid rate, full grown and immature ones. I want those drones to mate with my youngest queens. They have much sealed honey from last season. They have done this since April 20. What is the matter?

E. A. BOON.

Shellyville, Ill., May 6, 1889.

[I can not tell what it was, unless it was bad weather that discouraged them from swarming. Feeding regularly every day, I think, would have saved your drones.]

WILL BASSWOOD GROW IN SOUTH CAROLINA?

I should like to know if basswood would grow well in this climate. By referring to the map you can see where I am.

G. D. MIME.

Parksville, S. C., May 9, 1889.

[Yes, sir, basswood will grow everywhere; in fact, I never heard of a place yet where such trees would not grow, if they were planted. It is true, of course, that they grow naturally in certain localities and do not in others. In our locality we find them on the tops of the highest hills and in the lowest valleys; and I believe that wherever we have sent little basswoods they have succeeded when once started.]

BLUEBIRDS AND MARTINS EATING BEES.

Will bluebirds eat bees? Yesterday I saw one catching something, and to all appearances it was bees. I shot him, and his gizzard was full; there was nothing but bees. Then I shot a bee-martin, and he was full of bees also. My bees are doing very well at present. I look for swarms soon.

Dundee, Mo., May 10, 1889.

B. F. BAILEY.

[It has been urged that these birds simply catch drones and not workers. Did you examine the contents of their crops, to be sure on this point? My impression is, however, that it was workers that they caught, and that it was the honey in the honey-sacs that the birds coveted.]

W. S. DEVOL, FORMERLY OF THE OHIO EXPERIMENT STATION, NOW FIELD SUPERINTENDENT OF THE NEVADA AGRICULTURAL STATION.

I came to this station April 2, to take charge of the field work, agricultural and horticultural, and plenty to do in organizing the work. The field is new, and I have no doubt but much valuable work can be done here. The abundance of sage brush (*Artemisia tridentata*) makes excellent bee-pasture, and there is talk of conducting some experiments in bee culture.

W. S. DEVOL.

Reno, Nevada, May 10, 1889.

[We are very sorry indeed to have you leave Ohio; but if we must spare you, I am glad to see you where you are. I should be pleased to hear of some of the results of the experiments in regard to sage brush for honey.]

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 127.—How can prime swarming be prevented?

I know of no perfect preventive.

MRS. L. HARRISON.

I don't know of any positive cure.

PAUL L. VIALLO.

I don't know. I wish I did. Young queens or none at all, with shade and plenty of room, are powerful aids.

A. B. MASON.

By giving the workers the necessary room to deposit honey when flowers yield, and to the queen the necessary combs to deposit eggs. C. F. MUTH.

1. By extracting; 2. By keeping the colony weak by removing brood; 3. By giving plenty of room for storing and breeding. Not always sure.

A. J. COOK.

I do not know of any practical satisfactory way. Keeping a colony weakened down, or enlarging the hive excessively, will almost entirely prevent it.

R. WILKIN.

By taking out the queen with one or two brood-combs and attendant bees. Eight days after, break out all the queen-cells. A week or so after, the queen may be returned.

P. H. ELWOOD.

Cage the queen and remove all the queen-cells once in 10 days. Don't keep the queen caged over 20 days, as the colony will begin to run down as soon as the brood is all hatched out. E. FRANCE.

By using large hives, supplied with surplus boxes as soon as the crop begins, and provided with combs, you can prevent all swarming, save when bees replace their queens during honey crops.

DADANT & SON.

Prime swarming can not be entirely prevented by any practical means that I know of; but it may be greatly lessened by a free use of the extractor, in connection with large roomy hives. During the last few seasons I was in Iowa, less than 3 per cent of my colonies cast swarms.

O. O. POPPLETON.

Usually by giving the hive proper shade and ventilation, furnishing abundant room for the bees to store honey, and removing all queen-cells. Young queens are less inclined to swarm than old ones. Some cage the queen during the swarming season, and keep all queen-cells removed.

L. C. ROOT.

By the interference of man to such an extent that it throws the colony out of its normal condition. This can be done in many ways; but according to my opinion, none of these ways are conducive to the highest success of either the bees or their keeper, where comb honey is the object sought.

G. M. DOOLITTLE.

By giving such an abundance of empty combs that neither queen nor bees are ever crowded for room to store honey or lay eggs. Close extracting, even without so much room, will usually, though not always, prevent swarming. In general, swarming is discouraged by large hives and an abundance of ventilation and shade.

JAMES A. GREEN.

It has cost me many a dollar to prosecute this inquiry, and several times I have thought I had the answer just within reach, but first I knew it was off in the dim distance, and I must confess it is there yet. Of course, you know the stereotyped "plenty of room, shade, ventilation," etc., but with any or all of these they may still swarm. C. C. MILLER.

The man who can answer this question, by giving a plan that is successful in all cases, had better not answer until he has got his patent, as there is a fortune in it. I don't know any such plan. The tendency to swarm can be checked by tiering up before the lower sections are quite ready to seal, and constantly providing ample room, yet not too much. To entirely prevent swarming is about as hard as to keep a family of grown-up boys together in this country. It can't always be done. GEO. GRIMM.

There are too many ways to positively prevent swarming, and second swarming, for that matter, to dilate upon them in this department; but to answer your question practically, I believe there has never been up to this time any practical method devised which it pays to put in operation to prevent bees from swarming in a large, working apiary. In such cases when we have all the increase we desire, it is best to use the well-known practical methods to discourage swarming, and at the same time be with the apiary during the swarming hours and save what swarms break over the general rule and swarm. In the large apiary, other work demands our presence any way. For smaller apiaries, two or three long articles might be written upon the subject of how to manage them and not stay and watch swarms at all. Last summer I ran 60 colonies in one apiary in that way, and lost but one or two swarms, I believe.

JAMES HEDDON.

Now, here is a chance for some one to write a book upon this subject, and not answer all of the questions we could think of either. Several books have already been written, and a long array of articles to the bee-journals, away back through the past years, and yet the question seems to remain unanswered. I have found but one successful way to prevent swarming. This is my way: At a time when honey is coming in, shake or drum the bees out upon empty frames, on the old stand, and follow the new swarm with the surplus if any is on. When I have treated a whole apiary thus, I can trust them without any one to watch them. If you desire no increase, unite them with the parent colony after the season is over. Remove the old queens, and you have requened your whole apiary with young queens, without hardly thinking of it. I suspect the complete success of this plan depends something on the kind of hive used. Now, then, if this answer does not give satisfaction, and some one has a more successful way, I should like to hear from him.

H. R. BOARDMAN.

How can young people be prevented from trying to set up a new domicile? The thing is a little past the art of man. Some strains of bees are much less inclined to swarm than others. Some localities are very much less provocative of swarming than others. Running for extracted honey instead of for comb helps quite a bit. So if this man gets his stock from a business apiary where swarming seldom occurs, and keeps them in the right kind of a location, and runs for extracted honey, it is not likely that he will be troubled by swarming much.

As to location I will give my best judgment. Where the honey-flows are large, and mostly confined to a few short harvests, and the supplies of pollen rather scanty, there will be the least swarming of all. Where the honey-flows are small, and well spread over the whole season, and the supplies of pollen boundless, there will be the most swarming of all. This last pretty well describes my own location. I never had a colony get five pounds in one day that I know of; but I have had a third, if not a fourth, series of swarms led by the same queen in one season; and I have had thirty swarms in August. On the principle that any man can manage a bad wife except the poor wretch who has her, I suppose some of our respondents will tell us just how to do it.

E. E. HASTY.

I am glad to see, friends, with what unanimity you all refuse to recognize the claims of certain patent-right men for non-swarming hives. Even the traditional garret, where the bees have a whole room for it, does not prove, through a series of years, to be non-swarming.

QUESTION 128.—*How can second swarming be prevented?*

Leave but one queen-cell to hatch. E. FRANCE.

By cutting out the queen cells at the proper time.

MRS. L. HARRISON.

Remove all the queen-cells and introduce a laying queen.

L. C. ROOT.

By breaking out all the queen cells but one or (better) two adjoining ones.

C. F. MUTH.

Destroy all queen-cells, leaving only one, unless there is a young queen just hatched.

P. L. VIALLO.

I have had too little experience with either first or second swarms to know much about either.

O. O. POPPLETON.

By putting the swarm in the place of the hive which has swarmed, and putting the old hive elsewhere.

DADANT & SON.

Destroy all queen-cells but one, at the proper time after the first swarm has issued, say 6 to 10 days after.

GEO. GRIMM.

By removing all queen-cells but one, or all and giving new queens; also, usually by depleting the hive, *a la* Heddon. I find this works well.

A. J. COOK.

Usually by moving the old hive to a new location and placing the swarm on the old stand. By the Heddon plan. By cutting out all queen-cells but one.

C. C. MILLER.

By removing all but one of the queen-cells in one way. Moving the hive from which a swarm has issued, to a new location, will generally prevent after-swarming.

A. B. MASON.

By exhausting them of bees, which may be removed to the prime or first swarm, and employed in gathering surplus instead of acting as nurses in raising young bees that will never be able to pay for their board.

H. R. BOARDMAN.

1. A fertile queen may be given them; 2. After destroying all queen-cells a virgin queen may be given them; 3. All but one cell may be removed to a new location after a week. There are exceptions to all rules; and these are reliable, about in the order stated.

P. H. ELWOOD.

The best method I know any thing about, I devised and placed before the public, under the head of "Prevention of After-Swarms." It is printed in my book, and quoted and approved by Professor Cook, I believe, as well as being published in back numbers of bee-journals.

JAMES HEDDON.

I have always had good success by letting a newly hatched queen run in at the entrance as soon as possible after the first swarm issues. This method has the advantage of allowing you to select your breeding stock, and is very little trouble. What is known as the Heddon plan works well.

JAMES A. GREEN.

The following is the plan that I have laid out for myself the coming season: Set the prime swarm beside the parent hive; if too many bees incline to enter either of them, turn the entrance of the populous one away from the old position sufficient to prevent it. Six days after hiving, remove the parent hive to a new locality in the apiary, so that its surplus bees will return to the old stand, thus weakening it just at the time it would be getting the swarming fever again.

R. WILKIN.

Upon the issuing of the prime swarm, take the brood-combs from the parent hive, placing them in a box, substituting other frames in their place, hiving the swarm by the returning plan. Now carry the combs of brood and the adhering bees to a hive on a new stand, wherever you wish a colony to stand, placing the frames in this hive. On the morrow, take a virgin queen; and after lifting one of the frames from the hive, wait a moment, when the bees that are on it will begin to fill themselves with honey, as they are all young bees. You are now to put the mouth of the cage having the virgin queen in it near some cells of unsealed honey, from which she will quickly begin to eat. In doing this, both bees and queen assume a natural condition, when the frame is lowered into the hive, and the hive closed. If you look the next day you will find all queen-cells destroyed, and swarming given up.

G. M. DOOLITTLE.

I can tell how to do this, for I've done it—and contrived the plan all myself too. I listened at the hives at eventide, heard the young queens piping, rose early next morn, shook the bees into a swarming-basket, imprisoned them for two days in a pit, then returned them to the hive. It worked beautifully, and likewise ruined more than half the colonies I tried it on. Now, if I had waited an hour or two until the bees had swarmed naturally, and then had proceeded in the same manner for the rest of the process, it would have been all right. At least, that is my regular way of doing, and I have treated multitudes of them so with rarely any trouble. I concluded that breaking up their natural way infuriated them so that they killed their queen while waiting in the pit, and then (having got their hand in) they killed the other queen when returned to the hive. It was a time of great dearth of honey, and bees were abnormally cross. I mean to try the plan again under more favorable circumstances, and see if it can not be made to work. A lady, who has a considerable apiary next west of mine, handles all her second swarms by spreading them on a white sheet, and making them fly home after she has taken their queens all away. I'm sure I should miss half the queens (after-swarms frequently having several), and then they would go to the woods

instead of going home; but she seems to make a success of it. Shaking the bees in with the prime swarm every day or two is highly recommended. I have not tried it. It looks to me just like provoking the colonies from which your surplus must come, into a new series of swarms, and incurring at the same time a risk of making them queenless. In general, the man who says he can control the swarming fever never had a case of it on his hands—that's the long and the short of it. A dozen or even twenty prime swarms coming out in one hour is not swarm-fever. The colonies were all in good condition, and a freak of the weather brought them out all at once, that's all. A troublesome plenty of after-swarms, if they come in regular time (nine days after the first) is not exactly the disease either. In swarm-fever, swarms come out 14, 15, 16, and 17 days after the primes, showing that, in the first instance, the swarm came out with no preparation whatever. Young primes which have not yet built their quarters nearly full of comb begin a new series of swarms. Dividing is worse than useless. Each fragment sends out swarms; and the total of swarms is increased, and you have the division colonies in addition. This is the disease we invite you to cure, brethren; and hence these tears.

E. E. HASTY.

Removing all the queen-cells but one seems to be pretty generally accepted; but I should like to know how many of those who quote the above for an answer practice it regularly. I prefer the plan given by friend Green. But this does not always work. I expected friend Hasty was going to recommend burying the bees in the ground until they behaved themselves, as a remedy for all swarming troubles; but it seems that even the underground treatment does not always answer.

QUESTION 123—*I have a colony which has a young queen at liberty, and several more in their cells; and if left undisturbed it will send out a swarm to-morrow. If to-day I liberate all the queens from their cells, leaving two or more at large in the hive, but no queen in a cell, will the swarm issue?*

As the Spaniard says, "No sé." R. WILKIN.

Not as a rule; but they should be watched.

L. C. ROOT.

Not generally. They will kill each other, and one will remain.

P. L. VIALON.

I am inclined to think they will not, but I have no positive knowledge.

C. C. MILLER.

Probably not; there will be a battle, and the victor will likely hold the field. MRS. L. HARRISON.

Sometimes, but not as a general rule. I once had a swarm under precisely these conditions.

G. M. DOOLITTLE.

We think that bees will manage to keep two queens, and swarm with one and sometimes with both.

DADANT & SON.

Perhaps not, and yet it would not surprise me at all if they swarmed immediately, if it was a very favorable time for swarming. H. R. BOARDMAN.

I have never tried the experiment, so I can not say; but I wish the querist would do so and report; that is, report after trying the experiment several times, as once doing so will prove nothing.

Q. O. POPPLETON.

It is very uncertain just what they would do; but if I did not want them to swarm, I would take the queens away in place of liberating them.

E. FRANCE.

I don't know; but I think if that is the only condition existing that might be considered favorable to swarming, the swarm would not issue.

A. B. MASON.

It may issue at any time, and it may not. If the latter is the case, then all but one of the young queens have disappeared a few days afterward.

CHAS. F. MUTH.

I never tried this; but I think if the swarming-fever were prevalent among the bees they would swarm anyhow. There would be no certainty about it.

JAMES A. GREEN.

Yes, as a rule, supposing that in your climate or locality it is swarming time, and conditions for such are favorable; otherwise the surplus of queens will be killed off.

JAMES HEDDON.

Not today, Feb. 12. I don't know what they would do at the swarming season, but I think they would swarm the same. With the swarming-fever aroused they will swarm out with one young queen.

P. H. ELWOOD.

I think usually it would. Indeed, I have known several queens to come out of cells, hours before the swarm issued. The young queens do not always wait for the swarm to start before they issue from the cells.

A. J. COOK.

If the colony is strong, and honey-flow and weather fair, yes; if the colony is weak, then no. If the colony is strong, the bees will not allow all the young queens to meet any more than they would allow the hatched queen to destroy those in the cells, for the reason, I take it, that they desire to swarm—another illustration that the impulse to swarm comes from the bees.

GEO. GRIMM.

This scheme is interesting enough to deserve trial, both in moderately swarming and immoderately swarming apiaries. I will venture the opinion, that in the former it will usually succeed, while in the latter the swarm will often issue and leave a little queenless remnant in the old hive. Likewise I should not be surprised to see the whole batch turn up queenless sometimes. This plan seems to have one of the objections to the old cutting-out-all-but-one method (which is generally abandoned I believe); namely, serious liability to overlook one.

E. E. HASTY.

If I understand the above question, the point is, Does it change matters particularly one way or the other, if you open the cells with the point of your knife, or let them hatch after their own fashion? From what experience I have had with this kind of work, I should say that it would not make much difference. If the queens were let out of their cells before they were ready, the bees would probably tumble them out of their hives as so much rubbish—that is, if they noticed them at all. If they let them remain, when they have accumulated strength by taking sufficient honey and exercise they would swarm or not swarm, according to the flow of honey, number of bees, state of weather, etc. I once took a swarm of hybrids out of a bee-tree that seemed to have queens scattered all through the colo-

ny. They swarmed some, and I divided them up some, to give each queen a comb of brood. I think that none of the queens in this case meddle with each other at all; but perhaps the shock of the falling tree, and the bumping and tumbling around which they received might have put them out of fighting trim.

OUR HOMES.

Not to be ministered unto, but to minister.—MARK 10: 45.

WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT.

ALTHOUGH the book is finished, the matter is not out of my mind, by any means, and very likely never will be. During this present spring of 1889 we have had some new experiences; and in many lines, at least this matter of raising crops seems to be really overdone. Friend Terry's potato-book has not had any thing near the sale that it had a year ago, and very likely the book has been the means of contributing at least somewhat to the great quantity of potatoes that can not be sold. I believe that this state of affairs prevails pretty much all over the United States. In our locality, thousands of bushels are being fed to stock, and may be other thousands will go the compost-heap. It has been suggested that reclaiming our swamps, planting potatoes by machinery, applying Paris green by machinery, harvesting the crop by machinery, etc., has made it impossible for planting, hoeing, and digging by hand, to pay expenses any longer. While I do not believe that this is true, there may be a grain of truth in it. The question is, Will potatoes ever again be worth a dollar a bushel? I think they will, but it may be a good while, and very likely prices are going to run lower. Now the same is to a great extent true, at least in many localities, with the apple crop; and while I write, there seems to be a great prospect that the coming strawberry crop will be beyond any thing heretofore known, and may be beyond what the people can consume. Should a frost, however, occur just now, and I confess that, on this 21st day of May, there is quite a prospect of it, such an event would change the aspect of things entirely. Then those who were prepared to defend their crops from the frost would probably make their money, while their less fortunate neighbors would lose heavily.

Well, a good many are taking the ground that it is impossible for our people to find employment, even raising crops, and that too many crops are raised already. While I do not believe this, I am afraid, as I said before, there is a grain of truth in it; and if your old friend had better stop urging everybody to raise crops and live under their own vine and fig-tree, is there any other opening? Has the great Father in heaven made a *blunder* in putting so many people in this world of ours, without providing any thing for them to do? Not so; and I am sure the fault is with ourselves and not with God. In the first place, it is by no

means certain that we should be any better off by getting a dollar a bushel for our potatoes, instead of 25 cents, or 15 cents for our strawberries, instead of 8 or 10 cents. You may say that we *must* have enough for our potatoes to pay the expense of cultivation and harvesting, and the same with strawberries. We must have enough for them to pay the cost of picking. In one sense this is true. But the escape from this apparent corner is in using more brains—in letting necessity be the mother of invention. Better plans must be invented for doing our work. We must shake off the sleepy way of doing things, and use the common sense and reason which God has given us; and this brings me to my subject of what to do. The waste and useless motions which are to be found in most employments in life are truly appalling. Two great strong men are often employed to do the work that one small boy could do easily. We have machinery and improved methods; but without brains to guide and direct them, they are, to a great extent, a failure. Men and women are wanted to guide and direct; to look after the leaks; to cure us of our stupidity. Stupidity is the word exactly. We are all stupid, even the best of us. At one time a great shopful of machinery was standing still, because the feed-pump to the boiler would not work. It was pulled to pieces, and put together again repeatedly. Every thing was all right. The matter was getting to be serious. The great crowd of hands could not go to work until the pump could be made to throw water into the boiler. What do you suppose the trouble was? The valve situated near the dome of the boiler was not open wide enough to let the steam into the pump. The *small* valve close to the pump was opened and closed repeatedly, of course; but somebody, in a shiftless sort of way, had opened the valve near the dome *only a little*, and there it stayed until some one of the crowd was keen enough to declare that the pump had not sufficient steam to do its work. The reply was, "Why, the valve is wide open;" but the man who was using his *brains* declared, "Then some *other* valve is not wide open, or there is some obstruction." Half a dozen ought to have guessed from the working of the machine where the trouble was.

A few days ago we were disappointed in not getting a washer-woman. Mrs. R. said that she and the children could do it if somebody would turn the wringer; and then she added that she thought the wringer would have to be thrown away and a new one bought, because it had got into a fashion of turning so hard lately. I decided to take a look at the wringer, and what do you suppose I found? First, the set-screw that pressed the rolls together was so rusty that I could not turn it with my thumb and finger. A five-cent oil-can and five cents' worth of sewing-machine oil fixed it nicely. Five cents paid for the oil in the can, and almost a bottleful besides; but when the screw was oiled I found it would not bring the rolls together so as to do good work.

"Oh!" replied my wife, "they *used* to

work together nicely, but lately we can not get them down so as to wring any thing as dry as it should be."

Before she had done speaking, however, I found that the blocks that moved the bearings of the rolls closer together touched each other at their ends, so that the screw, instead of crowding the rolls toward each other, simply crowded the two blocks of wood against each other; and had the weight of a ton been put on them it would not have affected the distance of the rolls a particle. I pulled the blocks out in a twinkling, and shaved off the ends; then the rolls came down together as they did when new. Next, in attempting to turn the crank, the uprights that support the rolls "waggled" back and forth one way and then the other. The wringer is one of those mounted on a bench, on two uprights. The bench is large enough to hold a tub on each side of the wringer. Well, these two uprights had been "wagging" for I don't know how long, in just that way. When I expressed my disgust at such a performance, my wife replied again, "Oh! that is the way it has been for this long time, and I have been pounding the wedges in at the bottom with all my might, but it does not do any good at all, or not much good."

I smiled as I drove the wedges clear out and showed her that the uprights did not nearly fill the mortise in the top of the machine. Instead of having been driven in snug, as the manufacturer ought to have made them, there is nearly a quarter of an inch play; but by keying the wedges up tight the uprights had an appearance of being firm. Perhaps they were firm for a little while when the machine was new.

"Well," said my wife, "what are you going to do about it? The holes were made too large in the first place, and they can not be made any smaller."

Right within reach stood a basket of strips of wood. They were remnants of frame stuff from the factory. With one hand I selected a piece of wood that just filled the vacancy in the mortise. Then I called for a saw to cut it off with, at the point where it was just thick enough. My wife has a nice little saw for home use. I found, however, that it was so dull it would hardly cut off a pine stick; secondly, it "waggled" in the handle just as the standards "waggled" in the wringer. I looked my disgust again, and she explained:

"Well, the nice, neat, sharp little saw you gave me was borrowed by one of the men when they were at work near the house. As they did not bring it back, I sent for it, and this thing came instead."

Now, my friends, you have a picture of some of the stupidity of the world I have been trying to tell you about. Somebody in a hurry borrowed the nice little saw, because it would save time in going to the factory, which was all well enough had he been conscientious enough, kind enough, or gentlemanly enough, perhaps I might say, to have handed *my wife's* saw back to her. He did not do it, and nobody knows where the saw is. Then somebody else, equally stupid (I hope I am not getting to be un-

duly uncharitable here), gave her this miserable tool to use in her work. Any workman—in fact, I should say any man or woman—ought to be ashamed of having such a dull thing to work with. We have a man in our establishment, employed on purpose to keep saws in order. In fact, he does nothing else; but yet day after day I find valuable, high-priced hands using dull, crooked saws, loose in the handle. All that was wanted to make the saw tight in the handle was to tighten up three or four screws. Possibly a *wedge* was needed also, to make a substantial job of it.

To return to the wringer: I selected my wedges so that the tenon required considerable driving before it would come down to the shoulder; and when down, the uprights were so rigid that it seemed as if the keys below were not needed. However, I made these keys draw just right, and then drove them all they would bear, without breaking the wood. By the way, it is quite a trade to learn just how much driving wood and metals will bear; and this can be learned only by experience. Those uprights will probably never loosen or move again; and in all the repairing I did, I tried to remedy the defects made in manufacturing in the first place. The wringer will probably work for years, no mishaps occurring, such as I have mentioned.

Now, while the world is full of people wanting something to do, waiting for somebody to set them at work, there is only one in a hundred—no, perhaps not more than one in a thousand—who has gumption or energy enough (it occurs to me again that I am using pretty strong language; but, dear friends, I do hope it does not apply to you) to see that the tools he works with are in shape to do *their best*. There are individuals, I know, who like nice tools, and those who won't go to work until their tools are in good trim; but they are few and far between. In fact, there is such a tremendous want for such people that they almost always get above—that is not just the expression I mean, but it tells the story—using tools of any kind. They get a reputation of doing every thing thoroughly and well, and at the same time expeditiously, by using good sound common sense at whatever they may apply their hands to, and pretty soon they get great wages. A relative was stopping with us a few weeks ago, who gets \$3500 a year. I questioned him some as to why he could command such pay. It is just in the line I have been telling you; and one other thing comes in with it. He said ever since he commenced selling goods he has made it a point to tell the purchaser every thing about the make of the goods that was to be known. He thoroughly posts himself in regard to the use of the article, the method of manufacture, and then he is so strictly honest that no one who ever deals with him ever has reason to suspect him of even "keeping dark." He sometimes sells single firms \$5000 worth of goods. Now, then, friends, you have something of a key to this problem, "What shall we do?" I think I can tell a great many of you what to do. Go and turn your wife's wringer; see if the

poor woman is wasting strength—wearing herself out, perhaps, and laying the foundation of future doctor bills. Get her such a saw as I have described, and then file it yourself or else see that it is kept sharp. If the boys dull it, teach them how to put it in order again, and *insist* on their doing it. Have a good screwdriver and wrench, and, above all things, an oil-can, or, better still, oil-cans of different sizes, and some good oil. If a door squeaks, or opens hard, fix it. Don't you get oil on the carpet, either, nor on anything else. If the spring in the door-lock is broken, fix it yourself, or hunt up a man to fix it. By the way, how many men do you know of in your vicinity who will fix a door-lock, and do it well the first time? How many men do you know of who would fix up a clothes-wringer in the way I have described, and do it right? Men who can do these things, or who have taught themselves to do them, are never without employment.

"Shall we all turn tinkers?" say you. Yes, my friend, turn tinker by all means, if you have nothing to do. He that is faithful in few things shall be made ruler over greater things. These are the Savior's words. "Not to be ministered unto, but to minister." These are also the words of the Master. How much experience have you had in employing workmen to fix things, and then find them no better than they were before—sometimes not as good. I know without your telling me. A great many times a piece of work is sent home without even testing it to see whether it will work or not. When you want a lock repaired, of course you send along the key. Well, there are people who will repair a lock and send it home without even taking the trouble to put the key in the lock to see if it will turn the bolt. They are too shiftless to test their work before sending it home. They have not been schooled or drilled in thoroughness. People who are professing Christians, it seems to me, can not love their neighbor even a little (let alone loving their neighbors as themselves), or they would consider how much vexation of spirit it makes him to send him something that can not be used. Perhaps some of you think I had better look at home. O friends, I do know it. God knows I know it. A foundation-mill was once sent across the ocean; but when the friend over there across the seas attempted to put the crank on the shaft, it would not go on. The hole in the crank was too small. He accused us of fraud, saying that the mill had never been tested, because the crank would not go on, and never had been on. He was a little uncharitable, however. As it soils a new crank in testing it in the wax-room, we have one soiled crank that is used to test all the mills; but the man who bored the hole in the crank was too shiftless to see whether the hole was large enough for the shaft or not; and the one who packed the mill up to send it off to a foreign country did not have love enough in his heart to prompt him to try the crank on the shaft, to see that it was all right. In our own household, in other households, on the street, out in the fields, and everywhere I

go, I hear this longing, "Oh for somebody who would be careful to do things right; who would return borrowed tools, and—borrowed umbrellas; for somebody who would be constantly thinking of the comforts and needs and rights of the neighbors around him, instead of simply self—getting out of the rain, perhaps; getting a cultivator long enough to do his own garden—not caring whether the tools he borrowed were returned or not!" It has been said, that, should the Savior come on earth now, he would find a great improvement over the time when he did come. I grant, dear friends, that he would find much improvement in intelligence, in the progress of invention, etc.; but, oh what a wide field he would find for the exercise of Christian spirit and love! Not to be ministered unto, but to minister.

It is not only that you will thus do good and make people happy, but you will accumulate money. When in California I told you of the great call for something to do—people out of employment; but yet our skillful *bee-men* are constantly wanted. Well, most of these bee-men are experts in repairing things. They can fix almost any piece of machinery. People came to them, and offered them big pay because they were skillful; and, my friend, if you are skillful, people will come to you and offer you big pay. You may say that your talent does not lie in that direction. I want to contradict you. You *can* be skillful if you *want to*, and nothing in this world will help you to be skillful like having the love of Christ Jesus in your heart. If it gives you pain to see a friend or neighbor work with a poor and inefficient implement, a loving desire for his welfare will prompt you to study into the whys and wherefores of things—to get acquainted with implements and machinery, and with the ordinary affairs of this busy world. You can "learn to fix things," by practice. Just keep at it during all your idle moments, and you will soon get to be a proficient. You may think it a small thing to use a *hammer* with skill. Why, a good mechanic with a nice hammer that just suits him will do four times the amount of nailing in an hour that an ordinary person does. A great many times I say, "Friend, will you just let me get hold of that hammer?" and oftentimes I will just make him laugh while I show him the tricks and turns, and the amount that can be accomplished by the skillful use of a hammer. And it is the same with almost all other tools. When I first commenced business, the inspiring motive was not love for Christ Jesus; it was simply love for a nice little woman about 18 years old, who lived off in the country, across the river. That was not a very bad incentive, I admit; but if it had been Christ Jesus, it might have included the other. Her father feared I would never "make a living." Said I (I guess it must have been one moonlight night while we stood by the gate), "*We will see.*" So when I opened a jeweler's repair shop I solicited repairing of all kinds. I fixed door-locks, umbrellas, parasols, coffee-mills, etc. If somebody suggested they had

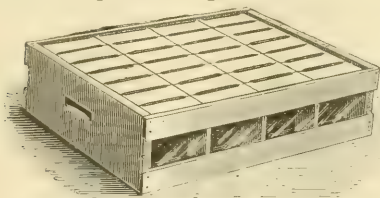
better perhaps throw it away and buy a new one, "Oh no!" said I, "don't throw it away. I will fix it, and it shall not cost you very much." If there was nothing else to do, I would work a couple of hours at an old coffee-mill, and charge only *five cents*. I charged only five cents, because I did not think the article was of enough value to warrant *more* than five cents' charges. I was bound to build up business, and most of you know I did it. And you too, my friends, no matter where you are, nor how you are situated—I do not care if you are lame or blind or deaf, or even if you are sick, you can be helpful to those about you, and begin the apprenticeship in that great trade of helping others. "Not to be ministered unto, but to minister." Let that be the motto of your life, and Christ Jesus will see that you are well paid. Yes, "Good measure, pressed down, shaken together, running over." Now go and look after your wife's clothes-wringer this minute, lest all the above talk simply go in one ear and out of the other, without having accomplished any thing.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

THE NEW COMBINED CRATE.

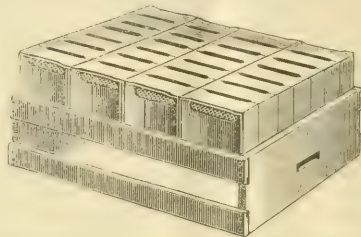
I HAVE never liked the combined crate; but as we have sold a good many, it shows there is a demand for something of the kind. As the objectionable features could be easily removed, we have lately made the crate so that it can be manipulated in very much the same way as the T super. Mention has already been made on page 373, GLEANINGS for May 1, of the changes made in the combined crate; but on account of the lack of engravings, no detailed description was given.



OUR NEW COMBINED CRATE.

The engraving above represents the crate as we now manufacture it. In appearance it represents the old one very closely. The only difference noticeable is the removal, or, rather, absence, of the projecting shoulder at the bottom edge of each end. In the old crate this shoulder was put on for the purpose of filling up the space left open by the rabbets. The design was, of course, to prevent the bees from passing up and around the crate; but as most practical apiarists use their surplus crates in connection with a honey-board, the projecting shoulder, when so used, was an unnecessary feature; and, more than that, it prevented tiering up inside of Simplicity bodies. In this connection the feature of non-tiering up in the old crate was a very objectionable one.

The engraving above needs almost no explanation. It is simply a shallow box, the sides of which are so made as to receive a strip of glass. The sections, instead of resting upon T tins as in the T super, are supported by slats having insets corresponding to the sections and in number equal to the number of rows of sections. These slats rest upon a strip of tin nailed to the bottom inside edge of each end, projecting far enough inside to catch the slats. That there are objections to supporting-slats which correspond with the bottom of the sections, I am aware. It is true, they will not always match with the bottoms of the sections, either because of a slight displacement or because of unequal shrinkage. There are a great many, however, who seem to prefer such a method of support in place of T tins.



REMOVING SECTIONS FROM THE NEW COMBINED CRATE, EN MASSE.

By the engraving you will see that the combined crate can be emptied of its sections in the same way as the T super; the slats simply resting upon the strips of tin are movable, and, like the T tins, are to be removed with the sections *en masse*. While the new crate retains many of the advantages of the T super, it has some additional ones. As explained on page 373, it may be used with or without a honey-board, though we would recommend that it be used in connection with a honey-board. In the engraving in the opposite column it will be seen that the bee-space is put above the sections. Of course, when the honey-board is used, the bee-space should be above rather than below. If the honey-board is not used, the bee-space should be put below the sections. This is accomplished by putting a little $\frac{1}{4}$ -inch strip of wood between the strips of tin that support the slats, and the slats themselves. In all the combined crates we send out, we always send $\frac{1}{4}$ -inch strips of wood, so that the purchaser may suit his own fancy about his bee-space.

Another important feature that the crate has, is that open-side sections can be used in it, which can not be said of the T super. Besides this, it will hold the sections a little more nearly square. One-piece sections are inclined to be a little diamond-shaped, and with T tins this trouble is not materially improved, unless another set of tins are used above the sections. Now, we called the crate "combined" because it can be used both for a shipping package and as a surplus arrangement while on the hive. Although we do not exactly recommend shipping honey in the same crate in which it was produced on the hive, yet there are a great many farmers and others who prefer

to market their honey in that way. If it is desired, the slats can be removed, and thin boards be substituted in their place. These boards should be of the length and width of the inside dimensions, of the crate. Remove the sections *en masse* and let the bottom-board down in the crate when it will rest upon the tin supports. Insert the sections, and afterward cover the whole with a similar board. The bee-space on top will leave ample room for the cover-board.

Although the crate is made much more valuable to the apiarist, we make no extra charge. The price for the combined crate will be the same as formerly.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

FIGHTING INSECT ENEMIES.

THIS matter is at present occupying the attention not only of the experiment stations, but of intelligent and progressive people generally. Our valued magazine, *Popular Gardening*, devotes several pages to the matter; but I have felt a little surprised that almost all of them seem to give but little space to protection by means of arrangements for fencing the insects away. Of course, this remedy can be applied only to small plants like melons, cucumbers, vines, etc. It is true, some of them hint that boxes with mosquito-netting tacked over the top will do; but it seems to me that mosquito-netting is altogether too frail; besides, the *Medina* bugs have learned the trick of crawling through it. Nothing answers with us like the wire-cloth protectors which we devised last year, as mentioned in our seed catalogue. Granting that Paris green, pyrethrum, slugshot, or things of this sort will kill the striped melon-bug, you have got to apply it as soon as the first plant is up. On our grounds, the striped bug actually digs into the dirt to meet our choice melons as they begin to push through the soil; and very often the first leaves are eaten off before they are expanded; and now to kill them with chemicals or poison you have got to apply it as each leaf comes out; whereas the wire-cloth bug protector can be put on before the plants are up if you choose, and it makes a dead sure thing of the whole business until the plants are big enough to raise the covering so as to stand over them like an umbrella. On our grounds we use altogether three or four hundred of them. The sight of the bright green fresh plants, with their first leaves without scar or blemish, is to me a real cause of rejoicing. We have frequently put the wire covering over a part of the hills and left some of the vines uncovered. The result is, that the first real warm day we have, those outside of the inclosure are eaten up in a few hours; and where a leaf stretches up so as to touch the wire covering, a cluster of bugs station themselves on the wire cloth and gnaw the leaf as fast as it grows. I do like to have appliances that are sure and absolute, even if they cost some money. I notice that the *Rural New-Yorker*

speaks of the flea beetle again at work on their potato-vines; and they say that, although they have tried every thing so far, they are without a remedy that amounts to any thing. This accords much with my experience, with the exception of the remedy I have already given—lime and guano sifted together and raked into the soil before the seeds are planted. With this protection we raise cabbages, radishes, and every thing in that line, with perfect immunity; but our radishes in the open fields are this year an utter failure. If the tops do manage to struggle past their merciless foes, the roots, when pulled, are found to be so full of worm-holes they are of no account whatever. This satisfies me that it is the larva of the striped beetle that produces the club-root in cabbages and spoils our radishes. A good dose of lime in the soil remedies the club-root in cabbages; but at present it does not seem to save the radishes, or at least it does not save them where the lime was put on last fall. Fresh lime and fresh guano, when the seed is sown, does the business—at least it does in our plant-garden close to the building. It may be that lime, to be effective, must be applied freshly slacked, just as the seeds are sown. These flea-beetles have damaged our early cabbages in the fields very much. Paris green and London purple do not seem to hurt them a particle. Buhach troubles them some, but it is too expensive. We can not afford to dose all outdoors with a powder that costs 75 cents a pound. Slugshot does not seem to trouble them a particle. The kerosene emulsion hinders them some; but the trouble meets us that I have mentioned before—it has got to be applied as often as the new leaves come out. I have been hoping, with the *Rural New-Yorker* folks, that these flea-beetles would soon get out of fashion—at least for a year or two; but we now have more of them than ever before, and they are on the foliage of our potatoes. I have been watching them on the potatoes for several seasons, and have supposed that they did not do any very great harm; but, my friends, it seriously cripples any plant to have the leaves all gnawed up and perforated with little holes. It has sometimes seemed to me as if the plant got discouraged and wouldn't try, after the beautiful bright green leaves it had put forth had been riddled by some greedy enemy. Of course, we can not afford to put wire-cloth coverings over potato-plants, even if we could get some wire cloth fine enough to shut out the flea-beetle.

I now want to say a word about going to extremes in the matter of chasing bugs. I have known a few people who would spend valuable time with a magnifying-glass, and different kinds of doses recommended in the papers, to save a few plants, when the time that was given to the subject was worth a good deal more than the whole crop, even if it did its very best. The one who raises garden-stuff for market, and competes with the prices on many products, needs judgment and wisdom. Many times he had better let his crop all go, or plow it under and try something else, than to waste time and

money in dosing insects. Where cheap labor can be secured (little boys and little girls, for instance), the matter can be managed, oftentimes so as to leave a safe margin. I have paid small boys five cents a hundred for potato-bugs when they first began to show themselves in the spring. This, you know, is Terry's plan. Where boys can be hired for less money than Paris green costs, by all means pay the money to the boys. It needs a man of judgment to handle Paris green as a rule; and my experience is that a man of judgment costs considerable money for every hour you keep him at work at the potatoes. Putting something into the soil to destroy the rudiments of the insect-foes seems to me the more rational proceeding; and the guano and lime for plant-gardens—yes, and for early radishes in beds, I think gives us a pointer as to what may be accomplished in this line.

LOOKING OUT FOR FROSTS.

I want to urge again the importance of a barometer and thermometer to the gardener or fruit-raiser. For ten days past we have had very cool nights, and once or twice a little frost. The question came up each night, "Had we better go to the expense of carrying out boxes, etc., and covering our plants, or shall we take the chances?" To cover our stuff as well as we could, would take perhaps three or four men two or three hours. In fact, it would cost a dollar or two to fix well for a frost. Now, then, I will tell you how the above instruments save money. After watching the matter closely I have decided there is but little danger of frost unless the thermometer goes down to 50 or lower at sundown. Now, there is no danger at *this* temperature unless the sky should be clear at night. The barometer here indicates pretty accurately whether it will cloud up or not. On one occasion everybody was sure there would be a frost. Newspapers and pieces of cloth were flying from every dooryard; but I steadily insisted that there was no danger, and made no preparation at all, because the barometer was "away down." When some of them laughed at me, I told them that, with the present low barometer, it must cloud up or else we should have a big wind, and either one would interfere with a frost. In the morning it was very cold, but we had both wind and clouds, and no frost. At another time I decided there would be a little frost. I told the boys to cover the pepper-plants, sweet potatoes, and cucumbers. The result was, that there was just frost enough to scorch the tops of the tallest potatoes, occasionally an enterprising bean-stalk, and the edges of a few of the cucumber leaves. Nothing was greatly harmed. Of course, we put sashes over all the sweet-potato beds. Well, the sashes were covered with frost; and where the leaves and sweet potatoes touched the glass they were scorched—nothing more. The sidewalks and tops of the bee-hives—in fact, the glass of the greenhouse, was covered with frost; but the squashes, even down in the creek bottom, were uninjured. A great many thought it very strange that the squashes and cucumbers low down on the ground

were unharmed, while the sidewalks were white with frost. I knew pretty well what it would be, the night before. The sun had been shining for several days, and the ground was quite warm, and warmed down pretty deeply. This latent heat saved the vines and every thing else on the creek bottom; but in the peat swamp, however, it was a good deal worse. The reason is, the light porous peat is a good deal like the boards of the sidewalk. The air circulated under and through it so that it cooled down; while in the clay and sandy soil it did not. So far this season (May 28) we are unharmed, and the labor of covering and uncovering with us during the month of May has not cost us fifty cents.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

HOBBIES; ESTABLISHING OUT-APIARIES.

LIKE my paternal ancestor, I find myself occasionally running into hobbies. It is one thing at one time and another thing at another. First it was chickens and pigeons; then came guns, electricity, chemistry, microscopy, and photography. Bees? Yes. They have had their fair share of patronage ever since I recovered from my first fear of the sting. Well, what is the latest hobby? It is out-apiaries. If I seem to be more enthusiastic than the subject warrants, you must lay it all to Dr. C. C. Miller, who is responsible for the fever. Of course, to keep up constant communication with an out-apiary necessitated a good traveling horse. No sooner had I purchased a good colt than my fever was horses and out-apiaries. Sometimes my mind runs on training colts, and sometimes on building air-castles in basswood orchards which a far-seeing parent provided seventeen years ago. I make this introductory, so that, if you see any thing wild or erratic, either in my writings or methods, you may be able to make a little allowance.

After we had decided upon the construction of the Dovetailed hive, we found that we had quite unwittingly blundered on to something that seemed to be *specialty adapted* to moving bees to out-apiaries. When I discovered this, and when I had become thoroughly animated by Dr. Miller's out-apiary articles, I could not rest easy till I had purchased a colt and made other arrangements to carry out, for the present, the out-apiary scheme. By the way, I know of no better fun than to go out into the country buying up bees, with a good spirited colt. I know of no better way to get fresh air; and it certainly is a pleasure to talk with the bee-keepers, here and there dotted throughout the county.

I decided that it would not do to take bees from our own home apiary. Having had foul brood in days gone by, I thought it would be a wiser way to introduce entirely new stock, and put them in an entirely new location. As we fill orders for bees by express from this apiary we were obliged to do so. Accordingly Billy (my colt), the cart,

and I started out on tours around the county, to buy up bees. Having selected the bees and having completed arrangements as to prices, etc., Mr. Spafford and our teamster, Mr. Ward, were to go out, gather them up, and locate them in the basswood apiary. By another fortunate accident, our market-wagon, although constructed specially for carrying vegetables, I found was made just right to take a lot of the new Dovetailed hives. If the wagon had been built expressly for moving bees it could scarcely be improved. The first time, in one load, our boys brought with it 29 colonies from a distance of 11 miles; with no very great crowding, it could be made to take 40. With only *two loads* we could establish an out-apiary, and the expense of hauling would, of course, be reduced correspondingly. Perhaps in the next issue I can give you a photographic view of our next load of bees, with the Dovetailed hives, on their way to the basswoods.

BASSWOOD APIARY.

Seventeen years ago our basswood orchard was set out on a piece of ground containing ten acres. I remember very distinctly helping to mark the rows, riding horseback while a stout, sturdy German held the cultivator. For my services I was rewarded 25 cents a day. As the "25 cents" began to heap up, I remember with what pleasure I thought I should get money, not to buy bees with, but to buy a gun. Little did I then appreciate the scheme of a basswood orchard which now looks so inviting to an apiarist. The trees have not grown as rapidly nor as thriftily as some of the trees that have been set out around the Home of the Honey-bees later; but it is a very pretty sight, I assure you, to look up the long rows of basswood-trees. I will try to give you a view later.

THE DOVETAILED HIVE.

As previously stated, we have nothing but the Dovetailed hive in use in the basswood orchard. The more I use them, the more I like them; and as I see the great piles of them in the flat moving off by freight, every day, it makes me feel glad to think how pleased the customers will be when they receive them. Our apiarist, Mr. Spafford, is equally pleased with them, both for moving bees and for general manipulation.

HONEY QUEEN.

In the basswood orchard, many of the colonies have had to be fed, to prevent curtailing of brood-rearing and starvation. While almost all of the other colonies are working from hand to mouth, one colony in particular required no feeding, but had secured so much honey that all the brood-combs in the brood-nest were bulged with honey that was evidently gathered recently. Besides all this, said colony was building little white burr combs over the tops of the frames. An examination of the brood-nest showed that swarming-cells were being built out. The stock was average in strength, and the bees were purely marked Italians. The queen herself is large and yellow. After I had examined the hive I came to the conclusion that *that* queen should not be sold—no, not

for any price, just now. If her bees pan out as well as they have been doing, we shall offer her queens for sale, and call them "honey" queens. You will please understand that we have no daughters of this queen for sale yet. We first want to determine whether her bees will do as well proportionately on clover, and finally on basswood.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 1, 1889.

Let all things be done decently and in order. 1 Cor. II. 40.

PATENTS ON BEE-HIVES.

We extract the following from Langstroth's book, newly revised by Dadant:

In closing this chapter on hives, we can not refrain from advising beginners in bee culture to be very cautious about buying patent hives. More than 800 patents on bee-hives and implements have been issued in the United States since January, 1873. Not ten of these have proved to be of any use to bee-keepers. The mention of this fact will suffice to show the small value of these 790 patents, and the loss incurred by those who have bought them before they were able to judge of their merits.

It seems to me that the above is a clincher; but I do not know where the ten are. There may be, however, 10 out of the 800 that *some* bee-keepers think are better than hives that are not patented.

MAKING IMPROVEMENTS.

We are constantly receiving devices, purporting to be some improvement upon implements already in use. Scarcely one of them is practicable. The majority of them are so expensive that no bee-keeper who looks to his bees for support can possibly afford to use them. In making improvements, we should ask ourselves, "Will the small profits at which honey is now sold warrant the cost and the introduction of the device?" Devices and implements for hives—those that are to be used in any quantity in the apiary, should be inexpensive—as a general rule, the simpler the better. Expensive hives and expensive devices will never reach a very popular demand. If honey could be sold at 75 cents or a dollar a pound, perhaps we might afford some of the alleged improvements.

THE BLACK SHINY ROBBER-BEES—SEE PAGE 456.

PROF. COOK takes it for granted that these bees are a kind of wild bee. Now, perhaps he is right in regard to those described by friend Callings; but I have noticed that some seasons, when robbing gets to be a fashion in an apiary or several apiaries, a good many bees seem to abandon honey-gathering entirely, and devote their whole time and attention and abilities to stealing. These bees, by their unnatural habits, lose their downy fur, and get slim and greasy looking, so that many people have suggested to me that they were not honey-bees at all. I have proved, however, that they were veritable honey-bees; for when basswood and clover began

to yield very profusely, these bees finally abandoned their pilfering and went to the fields and woods with the rest. Some colonies would be composed so nearly of these robbers that I have called the attention of visitors to them as I opened the hive and pointed them out on the combs. They were usually full-blooded blacks, or else had a little Italian about them, with only one very narrow band visible, and a good deal of the time even that was lacking. This would readily explain why they could come in swarms and make themselves very troublesome. I have occasionally seen wild bees enter hives, but these were so much smaller than the common honey-bee that there would be but little danger of a mistake in the matter. I think I never saw more than two or three of these little bees around the entrance at one time.

THE NAMELESS BEE-DISEASE.

LETTERS are coming in almost constantly, complaining of an unknown disease which is affecting the colonies. The symptoms given are always identical to the symptoms given in the A B C book, under the head of "Nameless Bee-disease." It is pretty evident that this trouble is getting to be more and more common. Fortunately, however, it is not a serious one. The removal of the queen, so far as we have ever known, always effects a cure. For the benefit of a good many who do not know how to recognize the disease, we give the symptoms here: The bees have a swollen appearance—that is, the abdomen is distended. The fuzz is entirely worn off, and the bee itself has a black shiny appearance, very much unlike a healthy bee. And just as soon as they become a burden to the colony the healthy ones boost them out of the entrance, where they may be seen crawling around in the grass, as if equally desirous of ridding the colony of their miserable presence. You will find quite a good many bees, doubtless, dead at and around the entrance—bees that have died from this trouble. We make this statement so that we may be saved the trouble of answering correspondents.

BUSINESS AT THE PRESENT DATE.

We have been having perhaps as large or the largest trade we have ever had since our business was started. We supposed we had ample stores of every thing that might be called for, especially sections, laid up ahead. Only a few months ago we cut down our force of hands and reduced our running time to only eight hours, to prevent getting more stuff made than we cared to carry. Well, every thing held out pretty well until about the first of May. Then orders poured in at such a rate that the largest force of packers we ever employed could not put the goods up fast enough; and when we did get packers enough to handle the business, then the foundation-room got behind; and shortly after, our great stock of sections had vanished and we were crowded in earnest for a few days. Of course, complaints began to come in pretty soon; but I believe that almost every customer was told that, by the time his complaint reached us, his goods had gone. But they did not all go as promptly as they ought to have gone. As we go to press, however, we are getting ahead rapidly in every department; and I hope that, by the time this reaches you, orders of all kinds, with very few exceptions, will be going off as promptly as usual. I have thought best to make this explanation, because some of the friends have felt a little hard toward

us. Please remember, we have admonished you in every issue of our price list, that we can not promise goods by the first train when orders are delayed until April or May. As a general thing, of late years, by the first of June the very large orders begin to slack up, and we usually have to drop a part of our hands before July is upon us.

A CORRECTION.

ON page 60, in answer to question 102, as to what is the average consumption of stores per colony, from October to May, our friend H. R. Boardman is made to say, "From 25 to 30, for *indoor* wintering." At the time, we thought these figures were pretty large. Since Dr. Mason's article on page 399 was printed, friend Boardman writes us that he meant to have said that this average of 25 to 30 pounds was for *outdoor* wintering, and he very modestly intimated that he might have made the error himself. By referring to the copy, we find that he wrote very plainly, *outdoor* wintering; and that the error was our own. With the exception of Dadant & Son, Boardman's average was the largest. We should be glad to have him tell us what is the average consumption of stores per colony for indoor wintering, from October to May. Now, President Mason, will you please "stand up" again and explain what you mean on page 399, where you say you believed "Mr. Boardman knew just what he was saying when he said from 25 to 30 pounds," and that you were "wondering if the others were not guessing"? It now transpires that friend Boardman's statement was incorrectly transcribed by the printers.

ANSWERING QUESTIONS.

WE fear that some of our correspondents are asking questions, simply for the sake of asking, and perhaps getting their names in print. Others, again, never stop to look the matter up for themselves. While we are glad to answer questions, we do not like to be obliged to go over the same ground that has already been fully gone over in the text-books. If the querists would first look in the A B C book, or whatever they may have, and if then failing to find the answer they will write us, we shall take pleasure in trying to help them out. Half of the questions we receive are already very completely answered in the A B C book. If you do not find it under the head where you expect it, look carefully in the index. The index to the A B C has been made very complete, with the special idea in view of helping beginners to find the answers to such questions as are liable to come up. For instance, the A B C scholar discovers that there are several eggs in the cell; that drones are hatching from worker-brood. This condition of affairs he has never seen before. If he will turn to "Eggs," in the index, he will come to a line that reads, "Eggs, plurality of, in the cells, 119." On this page he will find very complete particulars and instructions of what to do. Another beginner finds two fertile queens in a hive at one time. He wants to know whether that is an abnormal condition, and, if so, whether anybody else has discovered it. By the index, if he turns to "Queens," he will find under this head, "Two in one hive, pages 215, 220." Still another A B C scholar finds a peculiar kind of worm which is making galleries through his worker-brood. Thinking that this can not be right, he writes to us for information. He should first look at "Enemies of Bees." Under this head he will find "Bee-moth." Under "Bee-moth" he will find

full particulars how to recognize, how to treat, etc. Before looking over the index, think of some catch-word that will suggest the point concerning which you seek information. If you do not find it under the first catch-word, think up another till you hit it.

A. L. SWINSON ON THE SICK-LIST.

THE following has come to hand, and will explain itself:

FRIEND ROOT:—If this reaches you in time, say to readers of GLEANINGS that I am confined to my bed with pneumonia, and can't fill any orders till I am better. I am able to sit up in bed only a few minutes at a time. A. L. SWINSON.
Goldsboro, N. C., May 26, 1889.

DOVETAILED SIMPLICITY AND SIMPLICITY DOVE-TAILED HIVES (?)

SEVERAL of our customers insist on mixing the two hives, as indicated in the heading. Please remember that the Simplicity hive is one thing and the Dovetailed quite another, and the two can not be combined; that is, the feature of dovetailed corners can not be applied to the Simplicity, because the latter has beveled edges. You can easily see how this is if you put on your thinking-cap and study it out. If our customers will please bear this in mind, and not ask us to do impossibilities, it will be appreciated.

REGULATING AND RESTRAINING OUR GREAT RIVERS.

WELL, I have not got a great river to regulate and restrain. The best I can do at it is to take Champion Brook, which runs through our 18 acres; but as Champion Brook sometimes floods its banks, and makes a small river, I have got quite a little problem on hand after all. While in California I fell in love with the irrigating-ditches winding along the steep sides of the mountains. I also fell in love with the idea of protecting tender vegetation by these same hills and declivities. Well, Champion Brook runs through our grounds from west to east; and on the north side there is a steep bank where the fertility from our market-gardens washes down during a great rain. This bank grows such huge weeds that it is a task to chop them down several times a year. Now, I will tell you what we have "gone and did." On the north side of the brook, by means of galvanized gas-pipe with wire stays at the top, we have fenced up the bank so as to make a level plant-bed four feet wide. This plant-bed is just three feet above the water in the creek. On the north edge, close to the bank, is a shallow ditch, permitting us to run a stream of water clear from the carp-pond to the other side of our boundary-line; and whenever the foliage in this plant-bed needs water, there is Champion Brook within three or four feet to supply it. The whole of this bed is protected from north winds, and has every bit of sunshine that can be had, every day in the year. On this bed I propose to raise nice strawberry-plants all through July and August, no matter whether it rains or not. And next year at this time we expect to have the earliest strawberries on this plant-bed. Our good friend W. J. Green, of the Ohio Experiment Station, has just sent me a dozen of the earliest strawberries they have found in all of their great number of trials on the experiment grounds. Now, then, if the fertility from our heavily manured grounds undertakes to run off into Champion Brook again, it will just get into my strawberry-plant bed, and I mean to manage so it can not get any further.

Finally: My scheme for restraining our great

rivers is by means of galvanized iron pipe and netting—the latter like poultry netting, only heavier. Wooden piles may take the place of the galvanized iron stakes where they are under water; but where they are exposed to both water and air, galvanized iron, or rather, perhaps, galvanized steel, seems to me the material to do it with.

WE have at this date 8754 subscribers.

SPECIAL NOTICES.

SECTIONS OPEN ALL AROUND.

WE have some 40,000 of these regular width left of our stock made up in the winter. If any of our customers use or can use this kind we can send them by return train if you will specify in your order that you want open all around, or that you can use them. Remember, this applies only to sections $4\frac{1}{4} \times 4\frac{1}{4} \times 1\frac{1}{8}$, the regular 1-lb. size.

LATER.—We are up, so we can send any regular size by return train.

STRAWBERRY-PLANTS, AND SETTING THEM OUT ANY DAY DURING THE SUMMER TIME.

Perhaps you have noticed in our seed and plant catalogue we have advertised strawberries from March 1 till Dec. 1 inclusive. In order to make this possible, we first want good plants; second, we want good soil, and facilities for irrigation, or plenty of rain. Mulching may be made to take the place of irrigation largely; that is, if the ground is well soaked when the plants are put out, and then covered with mulch to prevent evaporation. We have been having a very brisk trade in strawberry-plants all through the spring, and are sending them considerably yet, even to the present time, May 30. It is true, it is a little difficult now to get any that have neither fruit nor runners unless they have been clipped off in anticipation of using them to send off. But we now have plants with great strong healthy runners extending a foot or more, and ready to take root at our first good soaking rain, which came last night. Shortly after this reaches you, we shall probably have well-rooted young plants. I do not remember that I have ever before had runners taking root by the first of June.

ADVANCE IN THE PRICE OF BEESWAX AND COMB FOUNDATION.

On another page of this issue you will find a notice of an advance in price of 5 cts. per pound on foundation, both wholesale and retail, by Dadant & Son. We are also compelled to make a similar advance. The reason is, a scarcity of wax and a consequent advance in price. This advance takes place June 1, and will hold until further notice. We will pay a corresponding advance in the price of beeswax; namely, 25 cents cash, 28 cents in trade for fair average wax delivered here; 1 to 3 cts. extra for select quality, especially that rendered in the solar wax-extractor. Price of wax to those who wish to buy will be 30 cents for average, 35 cents for selected. The revised prices on foundation will be as follows:

Packed in neat boxes, with tissue paper between every two sheets.		Heavy brood, 4 to 6 ft to lb	Light brood, about 7 ft to lb	Thin, surplus about 10 ft lb.	Extra thin flat bottom about 12 ft lb.
1 to 10 lbs. per lb.		45	48	55	60
10 " 25 " "		44	47	54	59
25 " 50 " "		43	46	53	58
50 " 100 " "		42	45	52	57
100 " 200 " "		41	44	51	56

KIND WORDS FROM OUR CUSTOMERS.

I received the queen sent, in good order. She is now laying, and is in fine condition.

DR. C. T. VAN OSDOL.

Allensville, Ind., May 14, 1889.

It is just four days since I received the bees from you, and transferred them into a hive. They are building comb nicely, on foundation. I saw the queen. She seems lively.

ROYAL HADLEY;

Manistee City, Mich., May 13, 1889.

WE QUOTE AN ADVANCE OF FIVE CENTS ON FOUNDATION,

Wholesale and Retail, over March Prices.

DADANT & SON, HAMILTON, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

KEYSTONE APIARY. Imported and Alley Queen-Mothers

Tested, June..... \$3.00; July to October..... \$2.50
Fertile, " 1.50; " 1.00
Virgin, " to October 50c
Alley drone and queen traps at regular prices.
Send for circular. **W. J. ROW,**
Mention Gleanings. 10-15db Greensburg, Pa.

Price of Sections Reduced.

I will sell No. 1 white basswood V-groove sections at \$3.00 per M. No. 2, \$2.00 per M. Price list free.

J. M. KINZIE,
10-14db Rochester, Oakland Co., Mich.

In responding to this advertisement mention GLEANINGS.

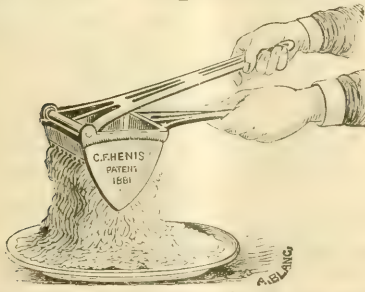
UNTIL FURTHER NOTICE.

Select tested Italian queens, \$1.00. Standard breeding queens, \$2.00. Imported, fine and prolific, \$6.00.

R. H. CAMPBELL,
10tfdb Madison, Morgan Co., Ca.

In responding to this advertisement mention GLEANINGS.

Fruit-Press & Vegetable-Strainer.

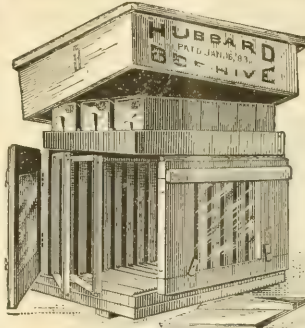


Reduced to Only 25 Cts.; \$2.75 per Dozen.

We have been using and selling this little implement since February. We are so well pleased with it, and the words of customers have been so full of praise, that we feel confident in saying that no housekeeper would be without one a single week if they knew its value. You can not imagine what a tempting dish you can make of potatoes till they have passed through this press. They are simply delicious. Some of our folks would scarcely ever eat a potato till we began using the press, and now they like them. The fruit season is just coming; and if the press proves as valuable in this capacity as for mashing potatoes, it should be as indispensable to the home as a rolling-pin or any of the common utensils found in every home. Believing that so good an article should be within the reach of all, we have bought 5 gross in order to get them at a price to enable us to sell them for a quarter by handling for a small profit. The usual price is 40 or 50 cts. Our price now is only 25 cts. each; 5 for \$1.15, or \$2.75 per dozen; \$7.00 per box of 3 dozen. By mail, 20 cts. each extra.

A. I. ROOT, Medina, Ohio.

FORT WAYNE, IND.



CIRCULARS FREE.
ASK FOR SAMPLE ONE-PIECE SECTION IF YOU WANT IT.
G. K. HUBBARD,
277 S. HARRISON ST.,
FT. WAYNE, IND.

If you are ever annoyed by the scraping and breaking of combs; killing bees when setting a frame to one side, or hanging it in the hive; sagging at the bottom and getting waxed fast; shaking about when moving a hive; in short, if you dislike to pry and wrench your frames, break combs, and kill bees while handling them, you will be pleased with this hive.

VERY CONVENIENT. AGENTS WANTED.
10 For "1st Principles in Bee Culture." It tells how to Divide, Transfer, Introduce Queens, Feed, Unite, Stop Robbing, &c. Money returned upon return of book, if you are not satisfied.
Mention GLEANINGS. 7-12db

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

HONEY, BEES, QUEENS, SUPPLIES.

Catalogue Free.

OLIVER FOSTER, MT. VERNON, IOWA. 3tfdb

In responding to this advertisement mention GLEANINGS.

QUEENS BY RETURN MAIL.

Tested Ita'n Queens, \$1.25; Untested, \$1.00.
10tfdb **I. GOOD, SPARTA, WHITE CO., TENNESSEE.**

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

OLIVER HOOVER & CO.,
4tfdb Snydertown, Pa.

BEE-KEEPERS' SUPPLIES SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME.

Shipping facilities good. Send for price list of every thing needed in the apiary. 7tfdb

C. P. BISH, St. Joe Station, Butler Co., Pa.

In responding to this advertisement mention GLEANINGS.

JAPANESE BUCKWHEAT!

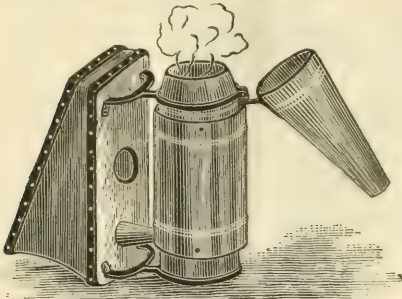
By freight or express, not prepaid.

Per bu., \$2.00; per ½-bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail post-paid, 25 cts. Address

John C. Cilliland,
5-14db Bloomfield, Greene Co., Ind.
In responding to this advertisement mention GLEANINGS.

1889. HELLO! HELLO! 1889.

How are supplies selling? You send for W. E. CLARK's illustrated price list. He is rock bottom for all supplies, and don't you forget it.



W. E. Clark's Improved Hinge-Nozzle Quinby Smoker. The Best Smoker Made.

Oriskany, - Oneida Co., - New York
3-14db *Mention Gleanings.*

SECTIONS and FOUNDATION CHEAPER THAN EVER.

Sections Only \$3. Dealers write for special prices. Free samples and price list. 1-12db
(Near Detroit.) M. E. HUNT, BELL BRANCH, MICH.

In responding to this advertisement mention GLEANINGS.

If You Want Full value for your money you should see my catalogue before purchasing. Japanese buckwheat, \$1.75 per bushel; 20 varieties of potatoes. Bees, queens, and supplies at low rates. CHAS. D. DUVAL, Spencerville, Mont. Co., Md.
7tfdb

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75
PER M. SHIPPING-CASES VERY LOW.
SEND FOR PRICES.

COODELL & WOODWORTH MFG. CO.,
3tfdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

J. W. K. SHAW & CO.,
Loreauville, Iberia Parish, La.

We can send choice untested Italian queens by return mail at 70 cts. each, or \$8.00 a dozen. Money orders, New Iberia, La. 1td

In responding to this advertisement mention GLEANINGS.

100 TONS OF COMB HONEY

Will undoubtedly be put on the market this season in our
FOLDING PAPER BOXES.

Send for catalogue, 20 pages, free. Sample box, 5c. Our prices defy competition.

9-20db A. C. CRAWFORD, S. WEYMOUTH, MASS.

In responding to this advertisement mention GLEANINGS.

MUTH'S
HONEY-EXTRACTOR,
SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb

Italian Bees and Queens for Sale

Wishing to reduce my stock of bees, I offer 50 colonies of fine Italian bees at the following extremely low rates: Full strong colonies on L. frames, put up in light shipping-boxes, f. o. b. at my station, \$5.00 per colony. Tested queens, \$1.25 each. Satisfaction guaranteed.

8-11db

A. C. BRUSH,
Susquehanna, Sus. Co., Pa.

In responding to this advertisement mention GLEANINGS.

WE ARE NOW READY TO SUPPLY
ITALIAN QUEENS to any person who wants as good as the best in the U. S. Reared from the egg, in full colonies. Tested, \$2.00; untested, \$1.00; 6 for \$5.00. Mismatched, 50 cts. Remit by Registered Letter or Money Order on New Market, Ala.
10-13db

B. B. TONEY & CO.,
Padgett, Jackson Co., Alabama.

In responding to this advertisement mention GLEANINGS.

LOOK HERE!

I will sell fine colonies of pure Italian bees, with their queens, in 10-frame Simplicity hives, 10 frames all worker comb and hive new, well painted, and guaranteed to arrive at your express office in good shape. Prices: 1 hive, \$7.00; 2 at one time, \$13.00; 4, same, \$24.00. Remember the risk of shipping lies with me. Address JNO. A. THORNTON, Exp. office, Ursa, Ill. Lima, Adams Co., Ill.
Mention Gleanings. 6-11db

B. J. MILLER & CO., NAPPANEE, IND.,

BEE - HIVES AND ITALIAN QUEENS.

4½x4½ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 1tfdb

In responding to this advertisement mention GLEANINGS.

1889. 19th Year in Queen-Rearing. 1889.

ITALIAN QUEEN-BEES.

Tested queen, in April, May, and June..... \$1 50
Untested 80

Sent by mail and safe arrival guaranteed. Also nuclei and full colonies. Eggs of Pekin ducks—White and Brown Leghorns, and White-crested Black Polish chicks, \$1.50 per dozen. Address

W. P. HENDERSON,

5tfdb

Murfreesboro, Tenn.

In responding to this advertisement mention GLEANINGS.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION.
See advertisement in another column.

HOLY-LAND QUEENS

A SPECIALTY.

BEES BY THE POUND, IN A L. FRAME.

BEE-KEEPERS' SUPPLIES.

GEO. D. RAUDENBUSH, 445 CHESTNUT ST., READING, PA.
Mention Gleanings. 9-16-11d

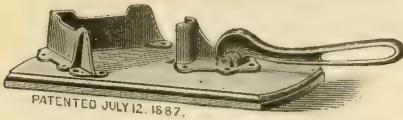
LITHOGRAPH LABELS

In 12 Colors, at \$2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2½x2½. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; \$1.20 for 500; \$2.00 for 1000. A. I. ROOT, Medina, O.

SECTION PRESS.

PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to 5-16db

WAKEMAN & CROCKER, Lockport, N. Y.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE.

Sections in bushel boxes, No. 1, \$3.00 per M. Japanese buckwheat; a complete S. or L. hive for comb honey, 75c; shipping-crates, and all kinds of supplies cheap. Price list free. 9-10tdb

W. D. SOPER, Jackson, Mich.

ITALIAN BEES AND QUEENS. Tested queens, \$1.50. Untested, \$1.00. Bees, per lb., \$1.00. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list. MISS A. M. TAYLOR, 9-10tdb Box 77. Mulberry Grove, Bond Co., Ill.

☞ In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS

FROM THE APIARIES OF

J. P. CALDWELL,

Of San Marcos, Tex. Reared under the most favorable circumstances. Will be sent by mail postpaid at the following prices:—

	Mar.	Apr.	May.	June	to Oct.
Select tested.....	\$4 00	\$3 75	\$3 25	\$2 75	
Tested.....	3 00	2 75	1 75	1 50	
Untested.....		1 25	1 00	1 00	
6 Untested.....		5 50	5 00	4 50	
12 Untested.....		9 50	9 00	8 50	

Contracts taken with dealers to furnish queens by the week at special rates. Address

5-21db J. P. CALDWELL, San Marcos, Tex.

☞ In responding to this advertisement mention GLEANINGS.

FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars. DR. A. B. MASON, 9-14db Auburndale, Ohio.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

3-14db Box 11. Higginsville, Mo.

☞ In responding to this advertisement mention GLEANINGS.

A Four-Color Label for Only 75 Cts Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

Italian Queens by Return Mail.

Tested, \$1.00; untested, 50c each, or more at same rate. 10tdb I. GOOD, SPARTA, WHITE CO., TENN.

A OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION. See advertisement in another column.



Eaton's Improved SECTION CASE. BEES AND QUEENS. Send for free catalogue. Address **FRANK A. EATON,** 5-16db Bluffton, Ohio.

☞ In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. In this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 30 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address **OTTO KLEINOW,** 4tdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange old copies of GLEANINGS IN BEE CULTURE for bee-keepers' names and addresses, plainly written. I will send 3 copies (as long as they last) for each half-dozen names sent to me from anywhere in Nebraska or Dakota. I will not agree to send any certain number from 1879 to 1888. J. M. YOUNG, Box 874, Plattsmouth, Neb.

WANTED.—To exchange one 46-inch Standard Columbia bicycle, as good as new, with the exception of finish being worn a little. Cost, when new, \$50.00. I want a Barnes improved combined machine, consisting of circular and scroll saw, and boring attachment; also want bee supplies. For particulars, address J. A. PULLIAM, Leasburg, N. C.

WANTED.—To exchange one 10-inch Pelham fdn. mill, good as new, for Toulouse geese, Scotch Collie pup, or double-barreled breech-loading shotgun. A. D. D. WOOD, Rives Junction, Mich.

Black and Hybrid Queens For Sale.

Black and hybrid queens for sale, 30 and 50 cts. respectively. J. A. KIME, Fairfield, Pa.

FOR SALE. 10 hybrids and 2 black queens.

A. W. SPRACKLEN, Cowden, Shelby Co., Ill.

Those having hybrid or black queens for sale, please notify O. R. COE, Windham, Greene Co., N. Y., stating number of each, and lowest price, cash in advance, for the entire lot.

Hybrid queens at any time, from pure mothers, at 40 cts. each. Order when needed.

W. M. VICKERY, Hartwell, Hart Co., Ga.

FOR SALE.—A few black mismated Italian queens one and two years old, at 10 cts. each. Tested, three or four years old, 25 cts.

L. J. TRIPP, Kalamazoo, Mich.

Two black queens, good layers, in Peet cages, 20c. A few mismated Italians at 35c.

S. F. & I. TREGO, Swedona, Ill.

I will send 5 hybrid queens, all last year's rearing, for \$1.00. E. C. EAGLEFIELD, Berlin, Green Lake Co., Wis.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—Honey.—There is about the same amount of honey as usual on the market at this season of the year, mostly of low grade. Choice white-clover honey, 1-lb. sections, 14@15; fair buckwheat, 12@13. Extracted, white clover, in cans, 7@8c; bbls., 6@7; Southern, 5@5½ for good; dark, 4½@5. *Beeswax*, prime, 23c. W. B. WESTCOTT & Co., June 10. 320 N. Main St., St. Louis, Mo.

CHICAGO.—Honey.—The old crop is about exhausted, and not any new has been offered, especially is the foregoing applicable to the state of the comb-honey market. Extracted, very little demand; prices 7@8c. *Beeswax*, 25c, and scarce. R. A. BURNETT, June 10. 161 S. Water St., Chicago, Ill.

NEW YORK.—Honey.—Our supply consists of 'extracted California only, quotable at 7@7½c. New Southern is sold as fast as it comes in. Orange blossom, at 7¼@7½c per lb. Lower grades at 65@70c per gallon. *Beeswax*, 27½c. F. G. STROHMEYER & Co., June 10. 122 Water St., N. Y.

MILWAUKEE.—Honey.—This market is good for the season. Prices are firm on good qualities, either extracted or comb. The old crop is being closed out. We quote 1-lb. sections, white, 15@16c; 2-lb., nominal; 1-lb., dark, 12@13. Extracted, white, in tin pails, 9@10; in kegs and half-bbls., 8@9; medium, in kegs and half-bbls., 7½@8. Dark wanted, 5c. *Beeswax*, firm, 25@28. A. V. BISHOP, June 6. Milwaukee, Wis.

NEW YORK.—Honey.—Extracted honey is in good demand. We quote fine orange bloom at from 7@7½. Lower grades and off quality, at from 65@70c per gallon. *Beeswax*, very scarce. A good article will sell on arrival at from 26½@27½. HILDBRETH BROS. & SEGELKEN, June 6. 28 & 30 West Broadway, N. Y.

BOSTON.—Honey.—We have less than 20 cases of honey on hand of all kinds. Sales very slow. 1-lb. sections sell from 16@18c; 2-lb., 15@16. Extracted, 8@9. *Beeswax*, none on hand. BLAKE & RIPLEY, June 10. Boston, Mass.

ST. LOUIS.—Honey.—Demand fairly active, but prices tending lower on account of increased receipts. Choice bright, 6½; dark, 5@5½. *Beeswax*, prime, 23. D. G. TUTT GROCER CO., June 10. St. Louis, Mo.

DETROIT.—Honey.—Very little honey in the market, and very dull sale at 12@14c for comb. *Beeswax*, firm at 24@25. M. H. HUNT, June 10. Bell Branch, Mich.

ALBANY.—Honey.—Market slow, with no stock and no demand, being between seasons. H. R. WRIGHT, June 10. Albany, N. Y.

KANSAS CITY.—Honey.—We quote white 1-lb. sections, 15@16c; dark, 10@12; extracted, white, in cans, 7@8; bbls., 6@7; dark, 5@6; white, 2-lb. sections, 11@12; dark, 9@10. CLEMONS, CLOON & Co., June 10. Kansas City, Mo.

WANTED.—Several hundred pounds of nice extracted honey, white clover and Spanish needle in their season. Who will furnish it? Send sample and price, delivered at Mt. Vernon, Jeff. Co., Ill., freight paid. W. W. ADDISON, Bumpus, Jeff. Co., Ill.

Garniolan Queens.

Importing and breeding this race exclusively since 1884; the demand for them has more than doubled each season. Send postal for circular, or \$1 for choice untested queen; \$5 per half-dozen. S. B. Minton's best grade imported queen. 11ftdb

\$ S. W. MORRISON, Oxford, Chester Co., Pa.

In responding to this advertisement mention GLEANINGS.

—A+ TESTED— ITALIAN QUEEN For 80 Cents.

We will send tested queens by return mail for 80 cents. Untested at 65 cents, or \$7.00 a dozen. Money orders, New Iberia, La.

J. W. K. SHAW & CO.,
Loreauville, Iberia Parish, La.
In responding to this advertisement mention GLEANINGS.

ALBINO AND ITALIAN QUEENS.

Tested, \$1.00 each; untested, 60 cents; warranted, 75 cts. One pound bees and untested queen for \$1.25. Send for circular.

JOS. MOSER, Festina, Iowa.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., SEBTON, ONTARIO, CAN.

In responding to this advertisement mention GLEANINGS.

I AM AWAITING YOUR ORDER FOR 3-FRAME NUCLEI.

Price, with untested queen, \$3.00. Best tested queen, \$4.00; 2-frame nuclei, 50 cts. less. Combs straight and true; all worker comb, and bees finest of Italians. One untested queen, \$1.00; 6 for \$5.00. Best tested, \$2.50 each.

JNO. A. THORNTON,
Exp. Office, Ursa, Ill. Lima, Ill.
Mention GLEANINGS. 12-17db

NOT TOO LATE

YET TO ORDER SUPPLIES

From me, as I ship very promptly. The class of goods I handle is very fine.

—TRY + ME + ONCE—

Catalogue free. JOHN ASPINWALL,
12-13d Barrytown, Dutchess Co., N. Y.
In responding to this advertisement mention GLEANINGS.

DO YOU WANT

One of the finest GOLDEN ITALIAN QUEENS you ever saw? Then send to us and get one reared by our new, natural, and practical method.

Warranted queens, each, \$1.00; **Select warranted**, each, \$1.25; **Tested**, \$1.50.

We have had **thirty years' experience** in rearing queens. 25,000 of our old customers will tell you that the purity, beauty, and quality of our queens can not be excelled.

12ftdb HENRY ALLEY, Wenham, Mass.

In responding to this advertisement mention GLEANINGS.

LOOK HERE! Cheap Enough At Last.

Full colonies of pure Italian bees in A. I. Root's Simplicity hive, only \$4.00 each. Now ready to ship. Frames, wired combs drawn from fdn., every thing first-class. Write for prices of Poland China swine, White and Brown Leghorn chickens, and Mallard ducks. Eggs for hatching. Also white and black ferrets. Address N. A. KNAPP, 11ftdb ROCHESTER, LORAIN CO., OHIO.

In responding to this advertisement mention GLEANINGS.

STRICTLY FIRST-CLASS SECTIONS, 5¼x6¼x 1½, at \$3.00 per 1000. Other supplies at bottom prices. E. BAER, Dixon, Lee Co., Ill.



Vol. XVII.

JUNE 15, 1889.

No. 12.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES.—NO. IX.

WHAT KIND OF A HIVE IS BEST FOR HAULING?

A FEW words about hives. Don't be frightened. I haven't invented a new hive. I only want to say a little about some features of hives that make them objectionable when it comes to hauling to out-apiaries. The nearer a hive can come to being a square box, with no projections of any kind, the more compactly a load of them can be put on a wagon. I like outside cleats, for easy handling. I have always been used to them, am prejudiced in their favor in spite of the fact that they add weight and expense to a hive, and I can hardly imagine how it can be so easy to pick up a hive of bees with no cleats, only hand-holes. In spite of all that, if I were starting anew I think I should have hives without cleats on the sides and ends. When it comes to loading them on a wagon, these cleats add nearly two inches to the width of a hive, which makes quite a difference in the number of hives that can be got into a given space. For getting as many hives as possible into a given space, nothing is better than a hive that has no cleat, no projection of any kind. Suppose a frame $17\frac{1}{2}$ inches long is used, then a hive *about* 20 inches long is needed; and if ten frames are used, about 16 inches in width. Now, with hives 20x16, solidly fastened together, no projections anywhere, they can be packed close together instead of being blocked apart as mine now are; and instead of 11 I could have at least 15 on the same wagon.

Of course, if you winter your bees on their summer stands, you will have comparatively little hauling to do. If you happen to be in that border land where it is a question whether it is best to use chaff hives, and winter on summer stands, or to use single-walled hives and cellar them, then out-

apiaries will turn the scales in favor of the chaff hives, for it will save so much hauling. In that case it might be desirable to have a few single-walled hives, as a matter of convenience, to haul occasional colonies or frames of brood from one apiary to another, transferring them when hauled into chaff hives.

PREPARING HIVES FOR HAULING.

If I knew just what kind of hives you have I could perhaps tell you exactly how to prepare them for hauling. As it is, I can give only some general directions. If your hives have fixed frames, at least so far fixed that they can not get out of place, then nothing is to be done with them. Indeed, if you have the ordinary hanging frame, all wood, resting on wood rabbets, then no fastening is needed if the frames are just as the bees left them the previous fall. If you expect to haul such hives without fastening the frames, you must not over-haul them in the spring before hauling, for then you will break loose the bee-glue and bridge-combs by which the bees have fastened them. If you have metal-cornered frames, or if for any reason your frames are loose, then they must be fastened. Perhaps you have spacing-boards, or some special means of fastening them. If you have nothing of the kind, then you might try a plan I have used. Generally I haul without doing any thing to the frames, trusting to bee-glue and bridge-combs. Sometimes, however, I fill a hive with combs from a number of other hives, in which case the frames must be fastened in their places. I simply thrust down a stick between the ends of each two frames, and between the outside frames and the side of the hive. These sticks—22 for a 10-frame hive—are from $\frac{3}{4}$ of an inch to an inch wide, somewhere in the neighborhood of half an inch thick—just thick enough so they will fit in pretty tight—and long

enough so they will rest on the bottom of the hive and project at the top a fourth of an inch or so, just enough so you can get hold of them to pull them out. These sticks you can put in at your convenience the day before you want to haul off course, bottom and top must be fastened securely, for there must be no possibility of leaking bees on the journey. C. C. MILLER

Masonica, III.

Well, I declare, old friend, if you had planned to give the *Simplicity* hive a boost, without saying a word about it—that is, without using the word "*Simplicity*"—you could not have done much better than you have in the fore part of your remarks. With the *Simplicity* hive, however, I planned the metal-cornered frames, and these you don't fancy a bit, it seems, especially for out-aparies. Now, look here: If you conclude to use chaff hives for out-aparies, use the metal-cornered frames in these chaff hives, and all-wood frames in *Simplicity* or Dovetailed hives that you use only for summer use. We used the sticks for spacing the frames—22 in number—years ago; but we very soon decided that they were altogether too much machinery. Then we made a spacing-board; but the boys have just lately, while buying bees and removing them to the basswood orchard, decided that the spacing-boards were too much trouble, and so they have got up some spacing-strips. Ernest says it is the same thing used by Manum, to be described later. I think our experience agrees almost exactly with yours on all the other points you mention.

MANUM IN THE APIARY WITH HIS MEN.

PRACTICAL AND REASONABLE SUGGESTIONS FOR VETERANS AS WELL AS BEGINNERS.

JUNE 25.—"Good-morning, Fred! I have come to spend a few hours with you to-day to help you clean up with your work."

"Good-morning, father. I am very glad you have come for that purpose, for I have had so many swarms for the past three days that my work is a little behind, especially looking after the boxes. I have a number of colonies to look after to-day—some new ones to look over, to see if the foundation is all right and being drawn out properly; and some that have cast swarms have got to be looked after to put out queen-cells or to see if the queens have hatched, or have commenced laying; and, besides, I ought to examine all of my nuclei to-day."

KEEPING GRASS AWAY FROM THE ENTRANCE.

"Well, sure enough you have got a good day's work before you. I notice you have mowed your yard, but you have not clipped the grass that grows near the hives. I suppose you intend to do that with the scow shears. It looks rather shabby as it is. You know I like to have the yards look tidy at this season at least. Suppose Mr. Root or any other one-cropper should visit your yard to-morrow, I fear you would be ashamed of its appearance. I know you have been very busy for a few days; therefore you are excusable; but as soon as you can I wish you would stick up a little."

"All right, father. I will do it in the morning early, before swarming commenced. Here is a col-

ony I wish you would look at. They don't seem to gain in strength, and I don't believe the queen is a good one."

NOT ALLOWING A POOR QUEEN TO REMAIN IN THE APIARY.

"All right; open the hive and find the queen. There she is, just going over the edge of the comb. Ah! I see; she is one of those long, slim, very yellow queens; and, besides, she has one lame leg, though she is laying pretty well; but her bees are small, frail things; they are not hardy enough for this climate. Show me the record. Ah! she is a daughter of the queen I got of Mr. ——. They are beautiful bees to look at, but that is not what I keep bees for; hence I will pinch off her head—there! You may hive a small swarm in here to-morrow, because the colony is too light to store much honey as it is; and by giving it a portion of a swarm with a good queen we shall get something from them. Always remember that a light stock at this season is worthless for storing honey, hence you should manage as best you can to keep every hive running over full of bees, as such only are the ones that give us large quantities of "snowflake honey."

LAY BEES—HOW TO MAKE INDUSTRIOUS.

"Father, here is another colony I wish you would look at. I have tried my best to get them into the boxes, but have failed. You see the hive is full of bees, and the front well covered with them; but they won't work. I have given them sections from other hives partly filled, and I have shaken every bee off the combs in front of the hive to "wake them up" as you have recommended, but still they are idle when all the rest are doing well."

"Yes, Fred, I understand that colony—or, rather, I think I do. They are like some men that I know of, perfectly contented and happy if they have one meal ahead. They lack energy. I will play them a trick by taking away all their combs and filling the hive with frames of foundation. There, now, we will also give them two clamps of new sections. Now you see they have got to work or starve. The brood we have taken from them we will use wherever we can find a place for it. Now I will go through the yard and look to the sections, as I presume some will need tiering up. Yes, here is one with the foundation all drawn out and capped half way down. The way to do it is to remove the clamps and set them up edgewise on this clamp-stand and remove any brace-combs that may be attached to the bottom. Now place the clamp of empty sections and then place those partly filled on top of them. Be sure that the spaces, or passages, correspond, so that the bees can pass up and down. Here are a few finished sections in this other clamp, which we will remove and put empty ones in their place. You must look to this and remove all finished sections as soon as possible before they become soiled by the bees passing over them. I have brought a bag of fine salt for you to sprinkle on the floor where you are to set the clamps of filled sections. The salt will keep the ants away from the honey. Don't be sparing with the salt; use enough to make the floor look white. Well, I will now return home and work in the home apiary the rest of the day."

JULY 1.

"Good-morning, Edward! How goes the battle?"

"Pretty well, Mr. Manum. I am not having many swarms now. I think they are about through swarming, but are they getting honey as fast as

they did. They gained only 4 lbs. yesterday. Well, that is pretty good on the last run of clover. Sumac will bloom in about five days; and if the weather is favorable they will do pretty well for four or five days, and then comes the basswood; and I hope by that time swarming will be all through with, as I don't want a single bee to lose a moment's time during basswood bloom."

"Have you had any second swarms this season?"

"But one, and that was owing to my neglect. I have followed your instructions as given in GLEANINGS of Apr. 1, and with what you have told me from time to time I have succeeded nicely in preventing after-swarms."

"JUMPING" SECTIONS.

"We will go over the yard together, as I wish to show you how I jump sections. I ought to have shown you when I was here the other day, but I did not think of it. Here is one that needs it. You have doubtless observed that the bees are slow to fill and finish the sections at the ends of the clamps. They will often fill and cap the center ones before even drawing out the foundation in the end ones; and in order to have the whole clamp finished up altogether, I 'jump' them by placing the end ones in the center and putting the center ones at the ends, as these center ones are so well advanced they will be finished by the time the empty ones are that we have just put in the center. This work I call 'jumping.' Now, when doing this work you occasionally find a finished section; in that case, remove it entirely and take it to the honey-house and fill its place with sections filled with comb left over from last year, of which we have a plenty reserved for this purpose. How about this record here in this hive? I see it reads, 'June 26, hived from 91.'"

"Yes, sir, this queen is from 91."

"How old is she?"

"One year old."

"How do you know?"

"Well, I remember that is the age recorded in the hive she came from."

"Very well. You remember now; but would you next spring? Or suppose I come here next spring or send some one else, I should have to go to 91 to find the age of this queen. If your records are all like this it will cause us much extra travel another year. You should have made the record thus: 'June 26, hived from 91, queen one year.' Please be very particular with the records. They are very important to me, as I wish to know the age of every queen."

"You are right, Mr. Manum. I now see the importance of having the records properly made out. You had explained this to me before; but I had forgotten. In fact, you tell me so many things that I can't remember them all."

"Yes, there are a great many things to explain about the bee-business, and I never yet had a man who could remember all I told him, and that is just why I am looking around after you. A slight mistake at this season of the year might cost me the use of one or more colonies; therefore be very careful and try to do just as I tell you, then if there are any mistakes it will be my fault and not yours."

JULY 3.

"Fred, how does that colony get along from which we took the combs all away and gave foundation?"

"They are doing nicely, father. I looked into the

hive last night, and they had the foundation all drawn out in the frames and boxes, and filled with honey except where the queen had deposited her eggs. I hear that bees work as they have since you played that trick on them. Where are you going to-day?"

"I am going to visit Will. I have not been in his yard for over a week. I just thought I would drive around this way to inquire after that colony. Sumac is just opening, and you must look well in the boxes; don't let the bees lack for room now."

"How do you do, Will? This is a pretty warm day."

"Yes, sir; it is so warm I was not looking for you to-day."

"Well, I have to start out whenever I get the work done in my yard so I must leave. Do you notice any difference in the working of the bees to-day?"

"Yes, I do. They started out earlier this morning than usual; and I also notice that they are very busy; and yet I do not hear so much of that humming as I did before. What are they working on now?"

"They have commenced on sumac. It commenced to open yesterday, and to-day it is nearly in full bloom. It will last only four or five days, and then comes basswood right after it; therefore you must look well to the boxes and be ready for the rush. If you should have any swarms come out now you may hive two or three in one hive, or hive a new swarm in where one came out the day before. There is a swarm coming out now. Did you have any swarms yesterday?"

PERMITTING SWARMING BUT PREVENTING INCREASE

"Yes, sir; one only. They are nearly done swarming now; there are only six more to swarm; this is the one that swarmed yesterday."

"Well, that swarm is clustering on the entrance all right, so that you may come with me and I will show you how to fix 28 to receive the new swarm. You say you hived the swarm from 28 in 96; therefore we will take six combs from 28 and give them to 10 in exchange for six frames of their foundation. Now, one foundation we will put into 28, there, now out all the queen-cells out of 28. This hive is now ready for the new swarm which you may hive in here at once; and as their two clamps of sections are pretty well advanced, I will give them one more clamp. There, now I think you had better do the same with the next swarm you have out by putting it into 18, where this one came from. This method will prevent increase, and keep every colony strong, as they should be now for the next 15 or 20 days. You may now introduce virgin queens into those twenty colonies from which we removed their queens to experiment 911 Elwood. It is 18 days to-day since we took the queen away. Give each colony a virgin queen as soon as they are hatched; don't keep them longer than you can help before introducing, or you may not be as successful. While virgin queens may be introduced two or three days old there is more risk at that age than when only a few hours old. You may simply let them run in at the entrance, or run them in by way of the sections and then in about 24 hours look in front of the hive for her. If the bees have rejected her you will find her there dead; if not, she is all right. In ten days you may look to see if she is laying; if so, reward her Q. L. with date."

Bristol, Vt.

A. E. MANUM.

You have given us some good points, friend M., and quite seasonable. The first one reminded me that the grass has not yet been cut in our apiary. We are not getting a honey-flow to any extent here at this date, June 11, therefore we are not having experience in the line of the rest of your remarks at the present time. Jumping sections is often managed by having the crate over the frames made in two pieces. When the bees begin to seal up the central sections, the two cases can be swung around so the outer ends come over the center of the brood-nest. This is how you do it, I believe.

HUBER, AGAIN.

ALSO SOMETHING IN REGARD TO HUISH, WHO SO SEVERELY CRITICISED HUBER.

IN GLEANINGS for May 15, you have given an excellent engraving of Huber, if Naturalist Library, Vol. 7, edited by Sir William Jardine, Edinburgh, 1852, in its frontispiece, gives a correct likeness of this great naturalist. A memoir is also given of Huber. His was a great mind, and I delight to read any notice of him. What a contrast between him and his cotemporary Huish, who undertook to refute by ridicule his discoveries. In the new edition of his work, Robert Huish, F. Z. A., and Honorary Member of the National Institute of France; the Academy of Arts and Sciences of Gottingen; the Agricultural Society of Bavaria, etc., a work of 458 pages, London, 1844, in his preface, says: "If in the course of the ensuing work we may have laid ourselves open to the charge of having applied the lash of ridicule too severely upon this falsely celebrated naturalist, we can only answer, in extenuation of that transgression, that we have been encouraged to the commission of it by the thorough conviction arising from an experience of above forty years, that the majority of the vaunted discoveries of Huber are the result of fiction and delusion founded on obsolete theories and antiquated prejudices."

How hard for him who had and was enjoying the distinction and society of the learned, to acknowledge that what he had so frequently taught in lectures, and published, were errors, even when made so plain and demonstrable as laid down by Huber!

I note some errors which occur in the 24th and 25th chapters of Huish's work; to wit:

Common worker-bees are of the neuter gender; they collect honey and make wax.

Bees deprived of their queen will not work.

Swarms are always accompanied by a young queen, but never by the mother-queen.

Wax is formed by an elaboration of the farina of plants.

The queen lays every egg in the hive, and is, in fact, the only female in it.

The drones are the males, and fecundate the eggs of the queen as they are laid in the cells.

The bees allow but one queen in the hive.

The queen oviposits only in the spring and summer, and *never* in the winter.

The queen is not fecundated by any act of coition with the drone.

No kind of food is administered to the worms in the cells.

There is no such substance in a hive as propolis.

The bees never make use of their stings in the massacre of the drones.

The queen never makes use of her sting on any occasion whatever.

The hive which has lost its queen can not rear another unless there are royal eggs in the hive.

Bee-bread is not applied to the nutriment of the bees, or as food of the larvæ.

The queen-bee has not the power of emitting any sound whatever.

The queen-bee pays no attention whatever to the royal cells.

A hive is not worth keeping after the fifth year.

Bees can not alter the generic character of the eggs under any circumstances whatever.

Bees work their combs always parallel with the entrance.

He devotes 40 pages descriptive of the different hives, specifying their advantages and defects, and gives two illustrations of the Huber hive. When he comes to speak of the "mirror, or experimental hive," he says: "It is to this hive we are indebted for many of the discoveries of Huber and Dunbar, especially of the latter naturalist; for in regard to the former, it appeared to be to him a matter of perfect indifference in what hive his experiments were carried on, for the results were always in perfect unison with his anticipations."

Murfreesboro, Tenn.

W. P. HENDERSON.

It seems sad to think that Huish should have been so unwise as to ever put in print his unkind criticisms. What a record for future generations! and yet while I read over the mistakes made by Huish, I feel to pity him more than to blame him; for in almost every one of the quotations there is a grain of truth; and we, with all of our later experience, can readily understand how he came to fall into most of his errors. In fact, a great many even now would indorse many of the statements. Yes, if we look back over our own bee-journals we shall find some pretty good men who have taken almost every position held by Huish. Let us be slow to criticise, and never think of taking the "lash" into our hands, unless the good of humanity demands that the deliberate thief and swindler be held up to public view, or something of that sort.

POLLEN AND HONEY FROM THE WILLOWS.

POLLEN-PRODUCERS.

A CORRESPONDENT asks: "Is there any other name for bee willow, or how can I tell it from other willow?" In reply I would say, that, so far as I know, all willow is "bee willow," for all of them with which I am acquainted yield either pollen or honey, yet some of them are more eagerly sought after by the bees than are others. Among the pollen-bearers we have several kinds of what is known here as "pus-sy willow" (*Salix*), which put out their blossoms quite irregularly. Some are a month earlier than others, and some of the buds on the same bush are ten days later than others. The kinds which seem to attract the bees most are the black willow, upon which the kilmarnock is budded, and those which produce a long cone-like flower similar to the black willow, the accompanying cut giving a fair representation of the latter, a week or so after it is through blossoming and has partially gone to seed.

From these two kinds the bees obtain large quantities of pollen, but, so far as I can ascertain, no honey. As this pollen comes the first of any which we have which amounts to any thing, I esteem it of great value to the bees. Skunk-cabbage gives pollen a little earlier, but we do not have enough of it to amount to much, compared with what these willows give. The flowers are of a rich orange color, and consist of a center out of which spring hundreds of little thread-like filaments, upon which the pollen is supported. It is very interesting to see the bees work on these flowers, as you can see their motions so plainly, for the tree or bush does not grow so high but that some of the lower limbs are about on a level with the eye. Here is a peculiarity of the willows, for all those in this section which give pollen grow in a bush form, while all of those which yield honey grow to be quite large trees, often reaching six feet in circumference.



PUSSY WILLOW.

The pussy willow naturally grows on low swampy ground; but with a little culture to start, it will grow readily on dry ground. They grow readily from cuttings put in the ground in early spring, as does all of the willow tribe. The above are often set down as "honey-plants;" but according to Quinby and my own observation, they produce no honey. As they grow very plentifully about here, I have had much observation regarding them. To be sure, the bee is continually poking its proboscis into the blossoms, the same as they do when sucking for honey; but after killing many bees and dissecting them, I have been unable to find the least bit of honey in their sacs. This way, if used when the bees are at work on any of the honey-bearing flowers, never fails to reveal honey accumulating in their sacs.

HONEY-PRODUCERS.

Of these we have three kinds—the golden willow, the white willow, and the weeping willow, and they are of value as honey-producers in the order named, although the weeping willow blossoms about three days earlier than the others. This would make it of more value to the bees, even did it not yield honey quite so profusely, if there were enough trees to keep the bees busy; but as there are very few trees of this kind about here there is not enough to make any account of. None of the three willows mentioned here give any pollen that I ever could discover, for none of the bees at work

on these trees ever have any pollen in their pollen-baskets. If there is any species of willow which yields both honey and pollen, I am not acquainted with it. The flowers are similar to those which grow on the birch and poplar, being of a long tag-like shape, as large as a slate pencil, and from one to two inches long. Those on the golden willow are the longest, and yield honey abundantly.



GOLDEN WILLOW.

The engraving presented herewith so nearly represents the golden willow that any one should know it in connection with its yellow bark, which distinguishes it from the other kinds of honey-yielding willow, as all of the rest, so far as I know, have a light-green bark. When these willows are in bloom, and the weather is warm, the bees rush out of their hives at early dawn, and work on it all day long as eagerly as they do on clover or basswood. The blossoms often secrete honey so profusely that it can be seen glistening in the morning sun, by holding the blossom between you and that orb, while the trees resound with that dull busy hum, so often heard when the bees are getting honey, from morning till night. As this is the very first honey of the season, I consider it of the greatest of value to the bees, for the brood is now crowded forward with great "vim," which brood gives us the bees which work on the white clover, while the honey often helps very greatly in piecing out the depleted stores of the hive. These willows blossom a little in advance of the hard maple, and hold out as long as they do; and from the fact that, when I kill a bee at work on these willows I always find honey in its sac, while when I do the same with a bee which is at work on the maple I never find any honey, I have been led to think that perhaps those reporting honey from maple might be mistaken, and that the honey really came from the willows. Again, maple blossoms only every other year with us, while the willows never fail; and I have noticed for years that I got fully as much honey in the years when the maples did not bloom as I did the years when they did. From the few trees along a small creek near here, my bees frequently make a gain of from six to ten pounds of honey while the willows are in bloom, and one season they made a gain of 15 pounds. This present spring some of my best colonies gained 8 pounds, while on apple-bloom they did not get more than a living, with apple-orchards white with bloom all about. The honey

from the willow is quite similar to that from the apple-bloom, and of a nice aromatic flavor. As the willows give the first pollen, and also the first honey each season, it will be seen what a great help they are to all who have them in profusion near their bees. The only drawback there is, is in the weather often being unfavorable, for I do not think that more than one year in three gives good weather all through the time the willows are in blossom. So far as I know, honey and pollen are always present in the respective kinds when they are in bloom; but the trouble is, that it is so cold, rainy, cloudy, or windy for the bees to get to the trees so much of the time, at this season of the year, that honey or pollen from this source is not at all certain.

G. M. DOOLITTLE.

Borodino, N. Y., May 30, 1889.

Notwithstanding your strong points in favor of the willow, it hardly seems to me that it would pay to plant it for honey alone. If it could be made to serve the purpose of a hedge, or to restrain the banks of a creek or river, or something of that sort, then we might afford to do it. In our locality miles of willow were sold years ago, as a hedge-plant. I have never been able to see, however, that they bore very much honey or pollen either, unless it was during special times for a few days. Perhaps you can tell us which class of willow it belongs to. On the banks of the Mississippi River, in the vicinity of New Orleans, I believe they often get considerable yields of willow honey. Perrine, you may remember, made mention of it. The quality is hardly first class. It has a taste considerably like much of the Southern honey.

BEE-STINGS AND RHEUMATISM.

SOME POSITIVE AND CONVINCING TESTIMONY AS TO THE VALUE OF THE BEE-POISON.

IN the May 15th issue of GLEANINGS, F. Brown gives his experience with rheumatism and bee-stings, and here is mine.

About fifteen years ago I sprained one of my knees. I was lame for a few days, and it got better; but the lameness, accompanied with an ache, came again; and as time passed on it continued to come worse and worse until it got so bad I could neither straighten my leg nor bend it up; and if by accident I did move it from just such a shape it was like biting on the nerve of a decayed tooth. The pain not only stayed at my knee, but extended above and below, and acted as if it had come to stay. I tried a magnetic battery some. I used liniment externally, and "sure cure" internally, with but little relief and no cure. Three years ago we bought five colonies of bees, and with them came the stings, and next the relief. I have not suffered as much from my knee in the whole three years, as I have in some three minutes previous to the stings. I have used no other remedy within this time. I am a farmer, and my work has been very much the same.

Now, I am not going to say that bee-stings have cured my rheumatism; but if I had employed a doctor, with the understanding of no pay unless successful, I am very sure he would call for his pay.

W. M. STACY.

Edgar, Clay Co., Neb., May 30, 1889.

You have given us a very important fact indeed, and one that seems to be pretty conclusive. However, as rheumatism often "lets up" of itself, in about the way you have described, *may be* the bees have nothing to do with it. You did not tell us how it was in winter time. I suppose there are several months when you do not get stung at all, unless, indeed, you get bees and get stung purposely during the winter.

CLOVER BLOAT.

CAUSE AND CURE.

MR. W. W. BOWLBY desires me to explain the cause of clover bloat. He states that thirty milch cows in his neighborhood—Southern Illinois—have recently died of this malady.

The fields, he says, are carpeted with white clover, and the season has been very dry.

This trouble is known as "bloating," *Tympanitis*, and hoven. It is really gaseous indigestion of the first stomach, or paunch. It is attended with great swelling of the paunch, or rumen, from the excessive formation of gas. The name *Tympanitis* comes from the fact that the belly swells out, so that it becomes as tight as a drum-head. This disease is most likely to appear in weak and poorly fed cattle when they are first turned out to clover. They stuff themselves with the succulent herbage, and, not having strength to digest it, gases are formed, and the bloating appears. The flanks swell up, the left always; the right, in severe cases, till the sides rise even above the back. The animal moans, breathes hard, reaches out its neck, distends its nostrils, grinds its teeth, often bellows and stamps, and at last staggers and dies in a convulsive fit. A greenish foam or liquid oozes from its mouth and nostrils. If the case is not very severe, aromatic spirits of ammonia—the same that is found so effective to cure sick-headache—may be given. The dose is one ounce in a quart of water every half-hour, till the swelling disappears. Sometimes two or three doses will bring relief. In very severe cases, the paunch should be pierced. This is best done by the use of a trochar and canula. The place to puncture is midway between rib and hip-bone, about three inches from the lateral process of the back-bone. When necessary, the tube or canula may be tied in and left for hours. This permits the gas to escape, and so may save the life of the animal. Animals have been saved by cutting into the paunch with a simple knife-blade. If the cattle are fat, sleek, and well fed, as all cattle should always be, there will be less danger of bloating. Again, animals should not be permitted to eat too much of green feed at once. By commencing on slight rations, and increasing gradually, the trouble will generally be avoided. If cattle are turned first on pasture where there is but little clover, and later where there is much, and only for a few minutes for the first few days, increasing the time a little each day, there will probably be no serious trouble. The clover when wet is still more harmful.

Agricultural College, Mich.

A. J. COOK.

Friend C., in the above you give us some real, practical common sense in the way of veterinary surgery. I shall become a strong convert to doctors and medicine if you give us some more such examples. I wanted you to tell us, however, what gas it is that

distends the poor animals, and how it is that ammonia neutralizes the gas and diminishes the pressure. My father used to give his horses saleratus water, when they suffered from colic; and though I was a small boy, my knowledge of chemistry suggested that the saleratus water might absorb the gas so as to relieve the pressure and set the animal at ease in a few minutes, which indeed it did. Now, this matter of giving relief by a surgical operation has reason to commend it, especially if the animal quickly recovers from the wound made through its side.

HONEY-DISPLAYS.

VARIETY IN ARRANGEMENT, ETC.

THERE has been a good deal in the bee-papers of late, respecting the best method of arranging for and setting up honey-shows. If these be made large and attractive, they serve a good purpose in promoting the interests of bee-keepers by attracting attention and promoting sales. To do the work well is no easy matter. This arises mainly from the absence of variety in the article shown. Extracted honey is extracted honey in whatever form it may be shown. Monotony can be broken only by variety in the design of the packages in which it is put up, which is in itself limited. The same may be said, but in a still more marked degree, of comb honey. I suppose the main object the writers have in view in these articles is to aid bee-keepers in making good displays at local fairs. It is noticeable, that those who have treated the subject describe the methods followed by themselves or those they have seen adopted by others, which have met their approval. At honey-shows the competitive prizes are usually confined to the *quality* of the article shown, and it is upon this that judges usually base their awards. This is right as far as it goes, but the prime object of honey-shows is to attract attention and advertise the goods. As ninety per cent of the visitors at fairs can not tell, by cursory inspection, between what is good and what is poor in quality, it follows that attention should be given to appearance. To this end a departure from the usual rule can not be made too soon. Prizes should not be confined to quality. Good taste and neat arrangement should come in, be recognized, and rewarded. This may be done without injustice to any one. A man with 200 pounds of honey may make as neat, tasty, and symmetrical a display on three feet space as one with 4000 pounds can make on 20 feet of space.

Any hard and fast rules laid down for the form of staging upon which exhibits are to be set up are entirely useless. It is manifest, that, to do justice to all, no competitor should have advantages over his fellows in a more advantageous arrangement of the framework upon which the show is to be made. It follows, then, that, whatever the design, the staging should be uniform throughout. The taste and ingenuity of the respective exhibitors will then be brought into play in the superstructure he raises to show his wares.

Most of the designs I have seen for staging are after the step-ladder style. To my thinking, this is the worst form in which staging can be built for honey-shows. It gives little or no opportunity for the exercise of judgment or the display of ingenuity in the make-up of an exhibit. If "variety

is the spice of life," it should have a place in all honey-shows. Little of it can be thrown in if this style of framework is employed. What, then, is the best form for the permanent fixtures in a building where honey is to be displayed? Where a number of people are to compete, the simplest is the best—at least this is my opinion, and the simplest is common tables. These should not be less than six feet wide. Space upon these should be allotted, in proportion to the quantity each has to show. Then each will be called upon to build up his own superstructure and decorate it. It is easy to understand, that by this arrangement variety will be secured; for every man will have his own notion of what is most suitable. These superstructures will take different forms in proportion to the amount of honey and the character of the packages to be placed upon them. I hold that no man can have a correct notion of what is the best form in which his exhibit should be arranged, without a full knowledge of what is available to make it with. How can a man suggest a design for his neighbor's show, without a knowledge of what his neighbor has to show?

Owen Sound, Ont.

R. MCKNIGHT.

Very good, friend M. I agree with you, that bee-keepers do not need to follow stereotyped ways; but many times some general suggestions are quite helpful.

REARING CELLS IN STRONG COLONIES CONTAINING A LAYING QUEEN.

AN IMPROVEMENT ON DOOLITTLE'S PLAN.

AFTER reading carefully Mr. Doolittle's articles on queen-rearing, in which he styles it "nature's way," or cells obtained under the swarming impulse; and having read a good deal lately about rearing queens in the upper story, leads me to write out my plan, which may prove a benefit to some one.

I have a Langstroth frame, with two strips of wood running parallel with top and bottom bar. I then obtain eggs from my best queen. These eggs should not be over three days old. I cut these in very narrow strips; after dipping one side in wax I stick them fast to the bars already mentioned. The frame should be bottom upward while fastening on strips. I then take these frames with eggs for rearing queens to a strong queenless colony that has been deprived of all brood and eggs, and hang the frame in the hive for one night or one day, or until they form a great many embryo cells, or cups. A good colony will sometimes start 40 to 60 cups; and if the eggs are of proper age, the cups will be formed around the eggs just hatching. I then transfer these frames, that have the cells started, to the upper story of a good strong two-story hive, with a queen-excluding board between. Every cell that was started will be worked out, and each cell approaches nearer to a natural-swarm cell than any thing I have ever seen. I have had in the last few days, by the above process, the largest and finest queens hatched I ever raised.

As soon as the frame with cells started is transferred to the upper story, I supply the same queenless hive with other eggs, and so on. The only danger is, that sometimes a queen will get into the upper story through the zinc. I think this plan is much easier than the one Mr. Doolittle gives, or at

least it is to me; for transferring larvæ or eggs to artificial or old queen-cells, starters just cut from the hives are a very tedious job. I let the bees do all the starting of cells; and when I go to manipulating them the egg or larva is in its proper place. I would advise looking after the cells oftener than under other circumstances; and as soon as they are capped they might be transferred, and other cells just started given to them. They will work out and cap several batches. I find they are willing to work out all that a queenless hive will start for them; and all that I have had worked out by this process are large and fine; fully as much difference as cells raised under the swarming impulse, as if the frame of eggs fixed as above should remain in queenless colony, where they were started and completed. I suppose most queen-breeders will understand all about how to fix strips of comb on an inverted frame. There is nothing new in this plan, that I know of, except letting the bees merely start queen-cells and then transferring the frame to a strong upper story. Any of my bees in an upper story will work them out. I think friend Doolittle deserves credit for this process, as it was suggested to me from his plan. J. D. FOOSHE.

Coronaca, S. C., May 27, 1889.

You have given us not only an important fact, but one that, so far as I know, is entirely new. If any such thing has appeared in our bee-journals I must have missed it. Had the question been asked me, "What will become of queen-cells just started in a queenless colony, if they are moved to the upper story of some colony having a queen?" I should have said at once, "The cells will either be torn down or allowed to remain where they are without any further care," and I can't help feeling a little doubt about its working every time with every colony of bees. You say any of the bees in the upper story will finish them out. Now, did you not test it while the bees had the swarming fever? If so, I can readily accept it; but at any other season, it seems to me very strange, if it proves to be true. No doubt, however, it may be in any case quite valuable during the swarming season.

CURRENT SAW-FLY.

HELLEBORE AND THE CURRENT-WORM.

MR. GEORGE THOMPSON, Geneva, Ill., sends me the larva of the currant, or gooseberry saw-fly—the currant slug. "Would it be asking too much," he writes, "that you give its habits and the remedies in GLEANINGS, that we may be fortified another spring?"

These yellow and black flies, about the size of the common house-fly, which they somewhat resemble in a general way, though these have four wings, come forth very soon after the leaves open in spring. They pair, and the female lays her small white eggs along the veins of the leaves, on the under side. The name saw-fly comes from the fact that this insect has a curious saw-like attachment to its ovipositor. Thus it saws a slight groove to receive its eggs. This saw, consisting often of a double blade, is of exquisite finish. We often boast, and with no slight reason, of the advancement in mechanical inventions of this century; yet when we study the matter closely we are not wholly

pleased. Thus if we magnify highly a knife or needle of finest finish we discover that it is rough and nicked, and looks like a sorry piece of work. Not so these insect-saws. They are elegant in finish and polish, and lose none of their perfection, no matter how greatly magnified. Nature shows us that we have room for great improvement, even in our best accomplishments.

The currant-slug, as it comes forth from the egg, is light green. Soon it sheds its skin, and becomes darker green, dotted with rows of black dots. With each molt, or shedding of skin, it increases in size, and after the last is again light green. It is astonishing how some of these larvæ eat. Sometimes we think, when we have mush and milk, or buckwheat cakes and maple syrup, that we have no inconsiderable gastronomic capabilities; yet when compared with these insects in their growing period we fairly sink into nothingness. When the slugs first commence to eat, small holes will be seen in the lower leaves of the bushes. Later, when they near maturity, the leaves seem fairly to melt away. The minute holes, the eaten leaves, and the devastated bushes, as well as the faeces of the larvæ, tell where these devourers are at work.

When fully developed, the larvæ, now nearly an inch long, pass to the ground; and just at or beneath the surface they spin gray or dark cocoons in which they pupate. In a few days the flies come forth again, and we have the second round of mischief. These insects have few enemies, and increase so fast that, unless we fight them, we must give up our currants, and the delicious jelly and *par excellence* jelly-cake. When once a currant orchard is attacked, it soon vanishes away unless we see that the slugs are put to rout.

The best remedy for this scourge is white hellebore. I have used this now for years, and always with the most evident success. Though this is a vegetable poison, it is not dangerous. I have known of its use for years, and yet I never heard of any harm coming from it.

To apply this remedy, use one ounce of hellebore to two or three gallons of water. Stir well and spray the plants by use of a good force pump, like the Whitman, or a good syringe like the Lewis. It is best to throw with force so as to scatter the poison on all the leaves. So, Bro. Thompson, just get and use some of this hellebore, and still rejoice in your jelly and jelly-cake.

A. J. COOK.

Agricultural College, Mich.

If we had insecticides that would work as surely and as easily in killing other insects as hellebore does for the currant-worm, I should feel quite happy. I have, however, never taken the trouble to make it in solution. All that we do is to get five or ten cents' worth of hellebore. Just take the paper right out into the field, make a little hole so the dust will sift out, then thump the package, or snap it, so as to raise a little cloud of dust. Let this dust drop or float on the worms or foliage, and that is the end of them. We always, however, keep a close watch; and just as soon as the smallest colony of currant-worms gets a going, they are dusted with hellebore. It works so effectually and surely that I rather enjoy seeing these worms make their appearance, that I may teach them that A. I. Root is "boss of this 'ere currant-ranch."

HOW OLD MAY A QUEEN BE, AND STILL BECOME FERTILIZED?

WISE AND OTHERWISE, FROM E. FRANCE.

IN reading my new A B C book I came across this subject on page 218. The author says, 25 days is the longest period he has ever known to elapse between the birth of a queen and the laying of worker eggs. I have always held an independent position on this matter, but have never taken the pains to prove it. Place a virgin queen, with a good colony of bees, clear away from the reach of any drones. A swarm of bees traveling over the country could perhaps easily settle down to work in just such a locality. Now, if there were no drones with them, how is this queen ever again to be fertilized? Has nature left this swarm to dwindle, and perish from off the earth, or has there been a provision made for their salvation? We all know that a virgin queen will lay eggs that will hatch good-looking drones. Those eggs will hatch in about 28 days. Now, is it not possible and even probable that the queen in this case would be fertilized by drones of her own, and then produce worker bees, and save the colony? why not? Why did nature provide that a virgin queen should produce drones unless she had some use for them? Perhaps you will say that a swarm of bees always have drones with them. Not always. I have known swarms to come off without a drone. I know it is not common for a swarm to come off without drones, but it does sometimes happen.

MOVING BEES.

In the middle of the day, when the bees are at work, is there any way to collect the bees that are out at work, and at the same time keep the bees that are in the hive from going out so we can move all, or very nearly all, the bees that belong to the hive? Yes. I will tell how I have managed several times. Perhaps you all know. All you have to do is to blow smoke enough into the hive to be moved to keep the bees that are there from going out, and wait for the field bees to come in. When they are all in, shut them in and move them. I think almost any kind of smoke will do. But I have always used tobacco smoke. The bees in the hive will need smoking a little as often as you see any bees starting out—about once in five minutes.

Almost any one will be surprised at the short time it takes for them to all get in. Of course, it depends upon what the bees are at work on at the time. When honey is coming in fast, half an hour is a long time for a bee to be gone. At other times, perhaps some would be out a whole hour; but not often. Don't smoke them too hard. It takes but a little smoke to keep the bees at home. They don't like to leave home when their home is meddled with in any way. I have bought bees five to ten miles from home, and moved them in May. When the bees are at work nicely, I smoke them three or four times and wait about half an hour, and then shut them in the hive and take them in my wagon and go home with them.

COLONIES LIVING AND PROSPERING IN THE OPEN AIR.

We keep our queens' wings clipped to prevent swarms from going off. When we quit extracting, near the close of the basswood season, our bees are usually very strong, and sometimes swarms issue. The queen's wing is clipped, and she can not go. Our hives stand on five stakes, leaving a space of

from 6 to 10 inches under the hive. When the swarm returns to find the queen they sometimes find her under the hive. The bees cluster under the hive with her, and soon go to work there in the open air, with no protection except the hive over them. As we have done extracting, and have no work to do in the yard, it often happens that it is six or eight weeks before we see them; and if there happens to be a fair run of fall honey, those swarms will have from a peck to half a bushel of comb built. They sometimes have from 10 to 25 lbs. of honey, and are breeding the same as bees in the hive. I once had a case of that kind that stayed under the hive until Christmas, and were then in good order. The snow was 6 inches deep, and the thermometer had been down to zero two or three times. As they had honey enough to winter them, I have always been sorry that I did not leave them until spring. I believe they would have come through all right. There was no stock running in the yard, and the blue glass had grown up thick around the hive, so they had some protection. The grass hid them from sight, so that was the reason they were not seen before.

Last season we found one swarm under a hive when we were preparing our bees for winter. This was in November. They had about half a bushel of comb, and about 10 lbs. of honey. There was no grass to hide them. We could see the combs ten rods away; and the strangest thing about it was, they had not been robbed of their honey. As the hive directly over them had been full of honey, and had been cleaned out by the bees, there was nothing in it but empty combs. No doubt the swarm under the hive came from the one above; and the upper one failed to mature a queen, and dwindled away and was cleaned out by the bees in consequence. It doesn't look as if it were possible for those bees to so protect their combs of honey from robbers, with no protection around them; but such are the facts in the case. We have from none to three or four every year of swarms under the hives in this way, and seldom are they disturbed by the other bees.

A QUESTION.

How is it that bees can build combs out in the open air when there is so much talk about confining the heat in hives and supers to get combs built? Why is it so necessary to contract the entrance of hives to secure the bees from robbers?

Platteville, Wis.

E. FRANCE.

I have thought of the same thing you mention, and I used to wonder, as you suggest, if it were not a safe provision to save the life of such a colony. As in all my experience, however, I never had a queen become fertilized at the age she would be when her own drones were able to fly, I gave it up. It may be, however, that under some circumstances it might be possible. Of course, there would be the objection of breeding from a near relative; but nature may have decided such a course to be better than utter extinction. Can anybody else tell us more about it? We have for some years adopted the plan of smoking the bees all into the hives when moving them in our neighborhood. I have seen colonies live for some time under the hive, just as you describe; and I have no doubt but that they would winter all right. In fact, the idea was advanced, many years ago, that if

hives were made with no bottoms except the ground, they would never be troubled with the moth miller. Now, it was to prevent this very catastrophe that I decided to have the bottom of the Simplicity hive the same as the cover. When banked up with sand and sawdust, as I have described in the A B C, it not only absolutely prevents the queen or bees from crawling under the hive when you are extracting, but it prevents toads, spiders, and snakes, and all such enemies, from getting under. Our first stands for bee-hives were made of a wide board with a piece of scantling under the back and front; but when we used these stands, during extracting time I used to go around every night and poke out the bees that had crawled under the hives and there clustered. If I wanted hives as high as you have them, I would set each one on a box, or, perhaps, something like an empty hive without top or bottom. I think bees can build comb to advantage in the open air, only when the weather is mild and the cluster of bees large. With our old hoop hive we demonstrated pretty well the effect of thin well-ventilated hives. Although the bees will get along in them, we think it is not profitable.

REPORT FROM FLORIDA.

25 LBS. PER COLONY FROM ORANGE-BLOSSOMS.

MR. ROOT:—I see by May 1st GLEANINGS that you are somewhat surprised at the yield of honey from the orange-blossoms in Florida, as stated by J. B. LaMontagne, pages 355, 356. It is as friend LaMontagne says. You would be surprised to see how many bees are at work on some of the large trees at one time; and the honey, as he says, is very white and of a fine flavor. I for one do not wish for any nicer. My bees this year have gathered on an average 25 lbs. per colony from this source alone. The best colony gave 48 lbs., all in $4\frac{1}{4} \times 4\frac{1}{4}$ sections. The above honey was all gathered inside of two weeks. Bees did not work on it the first three weeks, on account of unfavorable weather. You ask if it is only in a favorable season that they work this way. I think not, as my average last year was 35 lbs. per colony from this source. I have only a few bees, 16 colonies, at present, which may account for such a fair average from this one source. My total average this year up to date is 42 lbs. per colony (spring count), with gallberry and saw-palmeto to hear from yet, both of which are just opening; bees will be at work on them in a week or ten days. We generally get a good surplus from both of these sources.

The large green dragon-flies have been very troublesome about the apiary the past three weeks. They come by the hundreds, and destroy a great many bees. They are so bad at some times that the bees stop work altogether while they are around. I have seen them dart right down to the entrance of the hives and get a bee, when there would be a pint or a quart lying out on the front of the hive. I call this pretty bold.

A. F. BROWN.

Huntington, Fla., May 15, 1889.

We are very glad to get so good a report from the orange. I think if I were you I would try to trap or poison those dragon-

flies. It may be difficult to poison them without poisoning the bees, but I think it can be managed. I suppose your locality is near large bodies of water.

MOVING BEES TO ANOTHER LOCATION IN THE SAME NEIGHBORHOOD.

HOW TO DO IT, AND HAVE THE BEES STICK TO THEIR HIVE.

EDITOR GLEANINGS:—On page 347 friend Miller has an article on moving bees; but it seems to me that both he in his article and you in your foot-notes have overlooked one of the most important factors in the problem of how to move bees to a different location with the least loss of returning bees. I refer to the fact, that the more thoroughly bees, while being moved, are shaken up, roughly used, confused, or "obfuscated," as the darkey calls it, the more inclined they will be to mark their new location. The more thoroughly they can be impressed with the knowledge that something terrible is happening with their home, the more thoroughly will they examine the question of a new home when allowed to fly. Bees that have been carried two miles in a buggy or wagon, have of course been jolted more than if carried only one mile, and more of them will mark their new location. This whole thing can be tested by removing some colonies during the honey season half a mile or a mile from home, then carrying others several miles away and returning them to the same locations the first ones were taken to, without having allowed them to fly; then observe whether those that have been jolted the most and furthest will mark their new location the best or not. All such experiments should be made during a honey-flow, as bees are much more apt to pitch headlong out of their hives at such a time than at other times. If I am correct in these views, then it follows that your and friend Miller's deduction (that the fact that bees that have been moved two miles rarely go back, shows that bees rarely fly so far when foraging) is not so fully proven as you seem to think it is. My own observations have caused me to have quite a decided opinion that bees, especially Italians, frequently range freely at least four or five miles away from their home.

There is another practical application to this idea when making nuclei. Instead of carefully lifting the combs with adhering bees into the nucleus hive, I practice shaking the bees off the combs into the new hive, while placing the combs in the hive, closing hive up quickly before many take wing, and find that nuclei thus made retain many more of their bees than if the operation of shaking bees off the combs were omitted. Your apiarist is probably making many nuclei this season, and you can easily have him thoroughly test the value of this method, and report.

O. O. POPPLETON.

Havana, Cuba, May 21, 1889.

Your suggestion is a good one, friend P.; and I confess it never occurred to me before, that the further they are moved, the more likely they would be to take their points before sallying out. We have already tried pretty thoroughly this matter of shaking bees up and pounding on the hive to make them fill themselves with honey, and in order to make them hold to their

location after their hive was moved. But with some colonies, especially full-blooded Italians, it did not seem to make very much difference. They would go back to their old home, and cluster on a bush, even after they had been carried back to their hive repeatedly. We have always taken combs, bees and all, quietly from the hive, when we wanted them to form nuclei. If unsealed brood is carried with them, a great part of them will be pretty sure to stay; in fact, almost every bee will go home unless unsealed brood, or, better still, a queen, is carried with them. By taking the old queen from the hive, and leaving her a couple of days, most of the bees will usually stay with her. Friend Doolittle described this plan a little time ago.

WHITE ANTS.

ALSO SOMETHING ABOUT INSECTS RESEMBLING IN THEIR HABITS WHITE ANTS.

A FEW days ago I received a letter from J. F. B., Columbus, Ohio, in which he stated that some black insects, looking like ants, annoyed him seriously each spring. They came from the floor of his office, which was laid on sleepers between which he had packed coal ashes before the floor was laid. The insects would fly to the windows, upon which he had killed scores of them. Some of them were sent, and proved to be males and females of *Termes flavipes*, or white ants, which are among the most interesting insects we have in our country.

I have just received the following from Henry Wilson, Clinton, Ill.:

I send you some white insects, which are very common here, and very destructive to almost all kinds of wood. I have known them to attack the sills under buildings, and to destroy fence-posts; indeed, any wood that is connected with the ground. I send two kinds. I suppose the one with wings is a sort of queen. Please tell us through GLEANINGS what these are, and what can be done to destroy them.

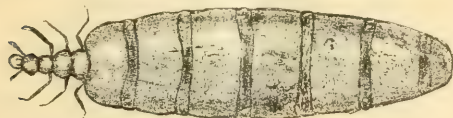


FIG. 1.—FEMALE WHITE ANT.

Though these are called white ants, they are not ants at all; though in their general appearance, and in their life habits, they remind us not a little of true ants. These insects are lace-wings, and so are related to ant-lions, dragon-flies, etc. White ants are very common, and terribly destructive in the tropics. The one here figured (Fig. 1) is from India. This great vital egg-sack is utterly powerless to care for herself. She is said to lay 100,000 eggs daily. The drawing is natural size. The worker-ants not only feed her digested food, but carry off the eggs, and I suppose occasionally turn her over and scratch her back. These tropical ants raise great mounds, and are said to entirely devour wooden houses and furniture, except a thin outside shell. Thus a person sits down to a table or on a chair, which looks all right, but which, like the "deacon's one-hoss shay," sinks to nothingness when touched. Humboldt said that a library was impossible in many tropical countries because of

these terrible miners. In other words, these ants love books—they are "book-worms." In all white ants the differentiation of individuals is far greater than among bees. Thus there are both male and female workers. The workers are simply abortive, or partially developed males or females, as the case may be. Then there are big-headed forms—the soldiers. Like the workers, the soldiers are also both male and female, and also undeveloped. Fig. 2 shows a soldier of *T. flavipes*, magnified four times.



FIG. 2.—A SOLDIER WHITE ANT.

The males and females of *T. flavipes* are black or very dark colored. They possess wings, are one-fifth of an inch long, and expand more than half an inch. They come forth from their tunnels in spring, often in swarms, settle to the earth, when the males seize the females. Some think, however, that mating does not occur till later in the season. After their flight they shed their wings.

This American white ant—the workers are small and white—also likes books at times. It has seriously injured public documents in the State Library at Springfield, Ill. It has shown the same habit, I believe, at Harvard College, where it is the fashion to go through books.

A few years ago the manufactory of Alvin Clark, the celebrated telescope-maker, at Cambridge, Mass., was attacked by this same white ant, and the first story had to be replaced to prevent a grand crash. Some years since, I received some of these same termites from a greenhouse man in Grand Rapids, Mich. The greenhouse was an old rotten wooden structure, and the ants not only attacked the building but also the roots of the potted plants.

The remedies are not hard to find. Kerosene oil, gasoline, bisulphide of carbon, and boiling hot water, will each and all put a quick end to the existence of these pests, if turned upon them. Circumstances will guide us as to the best specific. In case gasoline or bisulphide of carbon is used, great care must be exercised to keep all fire away till the vapors are all gone, or there will be a grand explosion. In case the ants are beneath the floor, as at Columbus, the floor might be taken up, the sills and all beneath saturated with kerosene oil, and the floor relaid. This would surely destroy the ants, and I do not think the oil would be disagreeable, with a well-laid matched floor above. Each person must decide as to which is the most desirable remedy in his special case.

In case of the greenhouse, I recommended pouring hot water on to the earth about the roots of the plants, and the painting of the woodwork with kerosene oil. The advice was followed, and the enemy at once disappeared. A. J. COOK.

Agricultural College, Mich.

I am greatly surprised to learn that we have insects in Ohio that destroy furniture in the way you describe. I have read of them in the tropics; but I supposed we were never to be troubled in that way. Saturating the woodwork with kerosene would add sufficiently to its durability, probably, to pay for all the cost of the application,

A NON-SWARMING RACE OF BEES.

WOULD THEY BE HONEY-GATHERERS AS WELL AS NON-SWARMERS?

IS it possible, from a practical standpoint, to produce a strain of non-swarming bees? If so, will they not be indifferent honey-gatherers, and lack the vitality necessary to be the bees wanted by the practical apiarist? "Why do bees swarm?" has been fully answered, and we infer that one prime cause is an overabundance of bees with a prolific queen, both in connection with a bountiful honey-flow. Very likely by producing queens for several generations from stock of limited laying qualities, we may be able to produce a strain of bees that will not swarm, and for very obvious reasons. We have queens in our own apiary that are four years old, and yet they have not swarmed, even under what might be called favorable circumstances. These bees always winter well, and breed up early enough in the spring; but when the honey harvest comes we find they are non-honey-gatherers as well as non-swarmers; this leads us to almost conclude that non-swarming queens are of but little use to any one; the only reason we can give for this non-swarming is that they lack the necessary ambition. The queens we like are those that keep their hive overrunning with bees, and when honey comes in they will want to swarm, non-swarming or not. There is certainly no queen worthy of being kept in a colony if she is not prolific enough to keep the hive overflowing with bees under favorable circumstances, and if such is the case then non-swarming is more the result of poor layers than a predisposition not to swarm. We don't say there is no such thing as non-swarming bees, for we have got them in our own yard; and our opinion, as before stated, is that the reason for it is a lack of ambition. Perhaps friend Boardman will say the reason for their not swarming is because they are perfectly contented; and if he is right, then we want to say we have more contented bees than we want. We look upon non-swarming bees about as we do on a non-swarming hive with patent moth-trap attachment; and if we put non-swarming bees and queens in such a hive, we have the *ultima* thule of worthlessness. If such would not be the result, we will give one of our non-swarmers to know why. Then, again, will not a queen be more liable to swarm in one locality than in another; if so, then of what moment is a strain of non-swarming bees? There is not the least doubt but that a strain of non-swarming bees would be a bonanza to thousands, providing they were as hardy and prolific as the best strains of Italians, or even hybrids; but in our humble opinion, such a point has not yet been reached; but far be it from us to say that it will not be reached in the future, for it may be possible; but if there are any non-swarming bees that are as hardy and prolific, and as able to send out the field-force of some of our best Italian colonies, we want to see them, and we want to see them pretty bad. Our experience says there are none; but as we don't know it all, we are willing to be convinced just the same, as we are willing to be convinced that there is a better general-purpose bee than the pure Italians. M. W. SHEPHERD.

Rochester, Ohio, May 27, 1889.

I do not think it necessarily follows that the bees would be poor honey-gatherers, because they did not swarm. Some of the

largest results we have known came from hives where the bees right straight along through the season sent a large force of workers to the fields every day, without getting the swarming fever at all. Will the rest of our readers keep this matter in mind? Have you not, most of you, colonies that gather large yields, and do not swarm at all?

RAMBLE NO. 17.

"IT IS PAID FOR;" COMING OUT OF THE LITTLE END OF THE HORN, ETC.

A FEW years ago a rap came to the Rambler's door; and upon answering it, there stood a very large man with his back toward the door, busily sharpening a lead-pencil. Without taking his eyes from the interesting point of the pencil, or looking to see who was opening the door behind him, he asked if Mr. Rambler was at home. He was answered in the affirmative, and was told that his humble servant was the man he was after. The pencil was silently finished to his satisfaction, and not until then did he make his business known. He introduced himself as Mr. Stephen Carpenter, of Granville, N. Y. Said he, "I am a bee-man and thou art another. I desire to see thy bees." We immediately adjourned to the apiary, and I found my Quaker friend to be an interesting visitor.



MY BIG QUAKER FRIEND AND I.

This episode happened several years ago; and since then the Rambler has made many calls on friend Stephen and his wife, and has always found a warm welcome. Mr. C. is now nearly 80 years of age; weighs, when in full health, 315 lbs., and his wife weighs about 100. Mr. C. has ever been a local celebrity for thrift, as all Quakers are. He is also noted for his great strength. A few years since, an article appeared in the *Troy Times*, describing some of his wonderful feats of strength, such as lifting a 1400-lb. cannon; throwing a troublesome steer over the barnyard fence, and taking two insolent men, one under each arm, and tossing them outdoors. These feats Mr. C. is very modest about mentioning. He never thres, however, in talking about his house and grounds. The house was built a few years since under his own supervision; and as we pass around in our inspection, his cane comes down in a pronounced manner, and with the whack come the words, "It's paid for!" We enter a

splendid cellar, the floor flagged evenly with large stones from the extensive slate quarries near by. The cane comes down on the floor, "It's paid for!" A large cistern across one side of the cellar, also covered with large flat stones, receives another whack—"It's paid for!" We go upstairs; every thing is substantial, neat as wax, and "paid for." Although Mr. C. and his wife can not play on a musical instrument, a costly piano graces the parlor, and his hand comes down upon the keys—"It's paid for!" So with the carriage, the horse, and the woodpile—"It's paid for."

Mr. and Mrs. C.'s pride, though they are so far advanced in years, seems to run to the raising of nearly all the garden luxuries of the season. Early and late potatoes, fine strawberries, fruits of all kinds, and last but not least, honey. Mr. C. has kept bees for many years, having them in old box hives; and, getting but little profit from them, they were transferred to movable-frame hives. His cellar has proved a fine repository for wintering, and is the first one the Rambler ever saw where bees were wintered near a large cistern. Though the body of water is covered with a mouse-proof covering, there must be more or less humidity in the air of the cellar; mold does not collect upon any article. The bees keep very quiet, and usually come out in excellent condition; and if there is any loss it is from starvation or weakness when put in.

Mr. C. is very particular to place the hives up a good distance from the floor. Nothing but flour-barrels with boards placed across them will be satisfactory to him. His apiary runs up to about 50 colonies; and finding good sale for his strained honey, an extractor was purchased, help obtained, and several barrels were filled with the nectar. The owner was much elated; and as every thing was "paid for," the dollars that came in from the sales jingled merrily in his pocket.



BIG AND LITTLE END OF THE HORN IN BEE CULTURE.

The bees were carefully put in the cellar in the fall; but it was observed that the hives were not so heavy as when box honey was raised. When spring came, and the bees were put out, a greater portion of them were dead, starved to death. This was a lamentable affair, and Mr. C. characterized the operation as going into the big end of the horn one year and coming out at the little end the next year. And this is not only the experience of our Quaker friend, but of many others, among whom may be found the

RAMBLER.

Friend R., we are very sorry to know that your big friend came out at the little end when he got to using the extractor; but, judging from the picture, even the little end of the horn must have been of pretty good size. There is quite a moral that may be gathered from that little sentence, "It is paid for." I know full well of the satisfaction and pleasant feeling it gives one to be able to say when he has succeeded in getting some work done to his notion, "It is paid for;" and I am afraid a good many of the friends who read GLEANINGS lose a great part of the enjoyment that God has prepared for us, simply because they go through life with an uneasy and guilty feeling of owning property, and using it, perhaps, day after day, without its being "paid for."

DOUBLE BEE-STANDS.

R. F. HOLTERMANN OBJECTS TO THEM.

YOU will perhaps remember, that at our convention in Columbus, Ohio, last autumn, I objected to bee-stands being close together in pairs. Perhaps the objection is not a very strong one, as it consists only of this: When a colony is made queenless on one stand it will shortly after load up with honey and unite itself with its neighbor, they forming a long and unbroken line into the next hive, if the stands touch one another. Herein, perhaps, the bee shows greater wisdom than man; for many queenless colonies would perhaps be better united with one having a queen than bolstered up; yet when other aims are in view this trait is objectionable, and a little greater distance will easily prevent the difficulty. When, however, it comes to attaching the two stands, I would say, most emphatically, no. Perhaps such careful men as Dr. Miller, with years of extensive experience, may be able to manipulate the one hive without jarring and irritating the bees on the other; but how many bee-keepers have not the capital that Dr. Miller has, and would get the second colony in a very undesirable frame of mind for handling. For this reason I think it objectionable that the general bee-keeper should have a double stand in the apiary.

SECTIONS WRONG SIDE OUT, ETC.

It does appear extraordinary, when we think of the simple facts required to be communicated to some bee-keepers. The other day, in my travels through the country I came across a bee-keeper who was taking comb honey. The sections were folded wrong side in, or wrong side out, whichever way you prefer, and then the bee-spaces were turned the wrong way, to the side instead of top and bottom. I begged for that crate, and told them I was anxious to exhibit it at the Toronto Industrial Exhibition, but I could not get it. But does it not show us we are neglecting many simple facts in bee-journals? The individual I speak of had for years taken one or more journals at a time. The comb-honey venture is a comparatively new one.

Brantford, Can.

R. F. HOLTERMANN.

I decided years ago, just as you have done, that I never wanted two hives attached together any more. I want each one on a separate stand, and so arranged that I can at any time walk clear around it.

CENTIPEDES.

THEIR BITE, AND THE USE THE CHINESE MAKE OF THEIR POISON.

ONE can not take up an ordinary paper or magazine, and surrender his mind to it enough for healthy recreation, without having his spiritual tone depressed; but in GLEANINGS I find recreation that tones up instead of down. This comes of its treating secular matters in a Christian spirit. A remark which a Chinese Christian once made to me illustrates the difference between a Christian and a heathen spirit. He said, "You are always ready to impart information. With us Chinese, what we know we keep to ourselves; and if we are ignorant, we do not like to ask others for information; for the one we ask would not inform us correctly, but would only glory over us because he knew more than we did."

But I started in to recreate on centipedes. These hardly ever trouble us in our ordinary residences; but at our seaside sanatorium, where many of us have to spend two or three of the hottest months, they are quite an annoyance. In this semi-tropical climate the centipede usually grows to be a little longer and two-thirds as broad as one's middle finger; but it is a very flat creature, and a very strong one too. I once put almost my whole weight on one, under the sole of my shoe; but when I took up my foot it started off as lively as ever; and I once saw a small one dragging off a gecko, many times heavier than itself. Its body is made up of 21 segments, each of which has a pair of legs. How it manages so many when running, I do not see; but Dr. Whitney, who has dissected one, says that its nervous system is very interesting. Each segment has a nerve-center with a pair of white nerves running down into its pair of legs, while a central cord connects all the segments with each other. Just back of the head is a narrow segment, from the under side of which grows a pair of nippers. These are three-jointed. The last joint ends in a sharp black point, while the first one expands into a poison-bag. With us their bite is not dangerous, but sometimes it is very painful. Much depends on the person, the spot bitten, and the condition of the centipede when he bites. In India, where they grow to be a foot long, their nip may be really dangerous. They are timid, and swift of foot, and live in cracks and crevices. They have a habit of crawling about under cover, and hence they like to get under the bed clothes; and when they happen to get on to a person, they prefer the inside of his clothes to the outside. One curious fact about them is that they generally appear in pairs, which seem to be attached to each other.

Several years ago I happened to be awake one summer night, and heard our little daughter whimper in her sleep, saying, "That shell on my ear!" Pretty soon she began to cry, and on looking we found the marks of a centipede's nippers behind her right ear. Fortunately it was not a severe bite. But one morning, as Dr. Whitney was wiping his face, a centipede, hidden in the towel, nipped him about an inch and a half below his left eye. He suffered severe pain for over 24 hours, and the place bitten was red and tender for weeks afterward. The dead centipede was pinned up on the wall, and next morning its mate was found near by it.

One morning last summer I suddenly discovered

a centipede under the breast of my coat. I jerked the coat off in a hurry, and began slapping at the hideous thing, which wriggled around over me so fast that I missed it several times. At last I knocked it off on to the floor behind me, and it dodged down some crack so quickly that I never saw it again. Had I succeeded in killing it its mate would have hung around until it too was killed. But when it escaped with its life, and had informed its mate of its adventure, perhaps the pair agreed with each other never again to go near a *biped*. Chickens will kill centipedes, and the Chinese say that "centipedes fear chickens, chickens fear snakes, and snakes fear centipedes."

The Chinese use the centipede for medicine, on the principle that one poison will combat another. When a centipede has been killed they take a bamboo splinter of suitable length, sharpen the ends and stick the points through the head and tail, and dry the worm stretched to its utmost length. Just now wishing one to examine, I bought one at a drug store for a cent and a half, which, as thus stretched, is 9 inches long—a monster for these parts.

TIGER-HEAD HORNETS, AND THEIR VINDICTIVE TEMPER.

Once four missionaries, an Englishman, a Scotchman, a Yankee, and myself, were on our way to take a look at a famous Buddhist monastery on the side of a mountain. We were walking up hill with our Coolies and sedan-chairs following behind us, when we spied a large hornets'-nest hanging from a small pine, about 50 feet from the road. The hornets were about twice as big as any I ever saw in America, and the Chinese called them "tiger-head hornets." The Englishman proposed that we knock the nest down, while I advised them to let it alone; but he began to look for stones, and the Scotchman began to throw them. I started on. A stone struck the tree, and immediately two or three hornets came over to inspect us. I quickened my steps; but the next stone hit the nest, and the hornets came at the thrower as straight as a shot from a gun. We all started to run up hill; and our Coolies, half naked, seeing us running, came running after us, right into the midst of the angry hornets. The Englishman, who was the prime mover, did not get a single sting. I had a slight one, the Yankee two severe ones. The Coolies also were stung, and they said, "There is no heaven's justice in this; we did nothing, and yet we got stung." But the Scotchman was stung in six places, and was in fearful pain for an hour or so. There was one while that he fairly quivered from head to foot, like one in an ague fit. The Chinese said it was a rash thing to attack a nest of tiger-head hornets. They had been known to sting a man to death. I asked the Scotchman what he thought of the promise to send hornets before the children of Israel. He replied, that he thought the plan might have been quite an effective one.

J. E. WALKER.

Shao-wu, China, Jan. 26, 1889.

Thanks, friend W., for setting us right on the centipede matter. Now, is there really any virtue in these dry centipedes, kept for sale at the Chinese drug-stores? Does the poison have any such medical property as the poison of the bee-stings? If so, why don't the doctors simply save the contents of the poison-bag, and not have a great horrid-looking worm to be handled and given store room? The tiger-head hornets you

speak of are probably something after the fashion of the *Apis dorsata*. I have seen our own hornets fly from their nests just as you state, as straight and almost as swift as a shot from a gun. Why in the world didn't some of you caution the Coolies, instead of letting them get stung in that way, when they were entirely innocent? I should not have blamed them if they had turned around and commenced stoning the whole of you white people—missionaries and all. We should like to see one of those big hornets, preserved in alcohol.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WHY DO LAYING QUEENS DESERT THEIR HIVES SOMETIMES, AND ENTER OTHERS?

I AM sorry to inform you that I lost that nice Italian queen you sent me last summer. I had just got her a good colony built up in five weeks from the time I got her, and she left her hive and I found her one morning on the alighting-board of another hive, on the opposite side of my yard, with a lot of bees balled up on her, about the size of a walnut, and they had killed her before I found it out. I can't tell what possessed her to leave her hive and go to another. I had her in a hive that was painted white, and the one I found her on was a marble-colored hive. I took what eggs she had and gave them to some queenless hives, and got several queens; but none ever produced as yellow, nice Italians as she did. She never laid a drone egg while she stayed with me, and of course the queens I got from her had to meet the drones from my other bees, which were not very good Italians. I want to get another queen of you after a while, and try my luck again.

McDaniels, Ky., May 21, 1889.

J. H. HART.

I am aware that queens apparently in a normal condition do sometimes get out of their own hives, and go into an adjoining one, or into some other hive in the apiary; but I have never been able to give any explanation of it, more than that the colony had swarmed some time when no one was around; and the queen, not being able to follow the bees, on account of a clipped wing, or for some other cause, had crawled along the ground, entered another hive, and succeeded in displacing the reigning inmate. If your queen's wing was clipped, this might be the explanation.

JAPANESE BUCKWHEAT SUPERIOR TO THE COMMON FOR HONEY.

I got one pound of Japanese buckwheat from you in the spring of 1888. I sowed it on new land full of roots, as I just took the timber off. I got over 3½ bushels of seed, much nicer and plumper than that I got from you. I had a few stalks of the old variety; and while the heads felt like chaff, the Japanese was loaded with grain. I think this will take the lead, and all others will go to the wall. I agree with Prof. Cook as to its being a honey-producer, for the bees worked on it all day, while they left the other before noon. The great trouble with buckwheat in this latitude, 44½°, is, if put in early,

the hot weather will blast it; if put in later, early frost will catch it. But with the Japanese, both are obviated. I prepare my ground as I would for oats, and sow not more than a peck to an acre. You will get more grain from that amount, on an acre, than any larger amount. Try it as I have, and be convinced.

L. P. COUSINS.

New London, Wis., May 27, 1889.

WHO IS THE RIGHTFUL OWNER OF THE SWARM?

I should like your opinion as to the rightful ownership of a swarm of bees. I have 33 colonies of bees, probably three times as many as the whole neighborhood within a range of three miles. One of my neighbors found a swarm on my place, about half a mile from my bees, on an apple-tree, and came to me to get a hive and borrow my bee-veil and smoker. Now, in all probability the bees were mine, and to say the least I thought it looked a little cheeky. Now, who was the rightful owner—the man who found them or the man whose place they were found on?

G. F. STEEVES.

Panama, Neb., May 11, 1889.

As you state it, the bees are yours, without question. The old clause in our laws that applied to bees found in a forest would not apply to a swarm of bees found in one of your own apple-trees on your own premises. Any justice or any jury in the land would decide the matter in this way, without any question.

THE GOLDEN BEE-HIVE, AGAIN.

The "Golden" bee-hive, shown up by GLEANINGS a few years since, has made its appearance in our midst, sold by one Pickerl's. Has the fellow a patent on this hive or not? None of our intelligent bee-men buy said hive, but find voluminous objections thereto. Ten dollars for *family right* is the small tax he requires, and some pay it. Amite Co., Mississippi, paid about \$1500 for its use.

W. F. ROBERTS, M. D.

Clinton, La., May 21, 1889.

It is not worth while to inquire whether there is a patent on the Golden bee-hive or not. It has been reported as a humbug and swindle for ten or fifteen years past, and every one who hears of it should take pains to post people in reference to it. The operations of those who have it in hand are fully given in our back volumes. You had better let patent hives alone entirely. I think every intelligent honey-producer at the present day will second this advice. See extract from Dadant's new book, on the first page of editorial matter in last issue.

FEEDING IN SPRING, ETC.

1. What is best to feed in spring to stimulate brood-rearing?

2. How much should be fed each night?

3. Will such feeding pay?

4. Do you think honey-boards or separators are any hindrance to the bees?

LESTER JUDSON.

East Sidney, N. Y.

1. The best feed to give the bees in the spring, for stimulating, is granulated-sugar syrup; but from motives of economy it is better to give them combs containing old or dark honey, or if you have some old extracted that is not salable. First heat it, to make sure that you kill all germs, and then

feed it back to the bees. During the spring you can give the bees almost any thing they will take. A great deal of old surplus, or sweets of any kind, can be used to good advantage. 2. We would advise you to feed about a pound daily until they are supplied. 3. If you wish to produce comb or extracted honey, or even to sell bees by the pound, such stimulative feeding will pay, provided the natural sources fail. 4. Our best authorities agree that honey-boards and tin separators are no hindrance to the bees. If they are a hindrance, certainly no one is able to observe it to any appreciable extent.

MOVING BEES UNDER RISKY CIRCUMSTANCES.

I had 20 hives moved 3 miles on a warm day, the 24th inst., and there was scarcely a hive from which bees could not crawl out at poorly fastened entrances or warped corners. Bees were flying when each load arrived home. Horses were not stung that we know of, and the bees did not sting me. I used a veil for only a few minutes. I was scared when the first load arrived, but found no harm was done. I was not alone. G. F. AYRES.

Atherton, Ind., May 22, 1889.

It is almost a wonder that you succeeded as well as you did, under the circumstances. We would not advise you to try the experiment again, if you value your horse and wagon.

ABSCONDING AND COMING BACK.

On Sunday, May 5, I had a very large colony of hybrids, two-thirds Italians, swarm. There was no one at home at the time to hive them, I being at church. They hung on a limb for over two hours, and finally went away. They stayed away for three days, when, lo and behold! on Wednesday they came back and clustered on the next tree. Having nothing prepared at the time, I took a band-box, cut some holes in it, and put it on a pole about 2 feet long, and got them down into the old hive. Then I put a piece of perforated zinc in front to keep the queen in. In another day or two they came out and clustered on a vine near by; but the queen not being able to get out also, they soon went back. I then went to work and divided them. I know that these bees must be mine, because no one else has any Italian bees around here. Please let me know if you have any bees that cut up such capers. J. C. HERBENER.

Portsmouth, Va., May 18, 1889.

Thanks, friend H. I have heard of swarms going off and coming back again. They probably discovered, after they had commenced housekeeping, that their move was rather premature; and rather than starve to death they wisely decided to go back and stay a while longer in the old hive.

THE HONEY CROP FOR CALIFORNIA AN ENTIRE FAILURE.

The honey crop of California will be nearly an entire failure this season, owing to those two dry months during January and February. We have also had too much cool, unfavorable weather. I visited friend Wilkin on the 25th. His bees are in fine condition, but not much honey gathered. Rather discouraging, but we are getting accustomed to bad seasons. Our good seasons repay considerably for losses. M. H. MENDLESON.

Ventura, Cal., May 27, 1889.

"BOOMING."

Bees are booming here now, and we are having lots of fun hiving them. The clovers are just coming nicely into bloom, to keep raspberries and locusts company, which I never saw before—the tree in bloom at one time. Clover is fully ten days earlier than last year, and it bids fair to give us a fine lot of honey. Sumac and basswood are well budded, and promise well. Oh how different from last year! A. E. MANUM.

Bristol, Vt.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 130.—What special means, if any, do you use to get the bees to work on sections?

None.

A. B. MASON.

Fill them with foundation. MRS. L. HARRISON.

Plenty of bees and honey seem to be necessary.

P. H. ELWOOD.

I have no trouble to get them to work when they are in proper condition to do so. GEO. GRIMM.

Put a few sections into the super that has comb in it. E. FRANCE.

Put in the center of the first super a section which has had honey in it before. C. C. MILLER.

Get all the brood-frames as close together as possible, so as to leave just enough space for the bees between each comb. PAUL L. VIALLO.

a. Contract; b. Reverse frames; c. Put comb in sections; d. Put little drone brood in sections. I do not use the same now. A. J. COOK.

Get the combs below filled with brood; then when the honey comes, the bees must take it to the sections, as they have nowhere else to put it.

G. M. DOOLITTLE.

If the colonies are populous, and each section is properly filled with foundation, they will usually occupy the sections if the flow of honey is good.

L. C. ROOT.

With large hives full of worker combs, and prolific queens, after a good wintering and an early breeding, we have never seen bees refusing to work in the surplus apartment if a few combs are placed in it.

DADANT & SON.

There are no other means to make bees work in the surplus boxes than a flow of honey, and the fact that the brood-chamber is about filled. A piece of comb or foundation, from top to bottom, in each one of the section boxes, serving the bees as a ladder to run up on, is an inducement. C. F. MUTH.

I get the brood-chamber full of bees and brood by the beginning of the honey-flow. That is all that is necessary. I rather prefer, though, to have the first honey gathered stored in a set of extracting-combs. Some bees will begin to work more readily on empty combs, and they work to better advantage on them when honey is coming in slowly. I would not use these, though, if the honey-season began with a rush. JAMES A. GREEN.

There is something about this question that is to me very suggestive. The bees are more reasonable in this matter than some apiarists seem to be. They will not store their honey up in a garret so long as they can take better care of it downstairs. When the conditions are favorable, and honey is plentiful, they will take possession of the surplus apartment, and you can't keep them out, even if you should try. If you think you can, try it some time and report your success.

H. R. BOARDMAN.

I do not keep bees that need special measures to make them put honey in the sections, when there is any to put there. If I kept such, possibly I might insert a chunk of young brood in one of the sections. As for putting on half a dozen sections, bees and all, from a better colony, I don't believe I should do that. My sections of empty comb left from last year I divide up among the different colonies, and put them in the center, directly over the brood. This is to some extent an inducement to go above.

E. E. HASTY.

This question seems a queer one to me, and, answered from my standpoint, my answer may seem strange to you. My bees never falter in entering the surplus apartments, at storing time, for either comb or extracted honey, the moment the flow furnishes any surplus, provided, of course, the colonies are of normal strength. Now, you may put your question to me again, to know what means I have used to bring about this condition of affairs, which does not seem to exist in every apiary, I take it, from your question and others similar. In the first place, I carefully breed my bees for honey-gathering and comb-building qualities or propensities. I study the shape, size, and manipulation of my brood-chamber in connection with this important feature; also the surplus apartment to some extent.

JAMES HEDDON.

It seems to me that friend Heddon and some others rather ignore the need of getting bees to commence work promptly. I have seen a colony cluster on the outside of the hive when honey was coming in at its best. An examination of the combs showed that they did not gather a pound a day, while other colonies not as strong would gather six or eight pounds a day; and this same colony that had been thus wasting its time, when they once got started would store eight or ten pounds in 24 hours. When bees get the swarming mania they are quite apt to act in this way, and a swarm will sometimes persist in hanging idly outside and sometimes inside of the hive, instead of going to work. I have made such commence business by driving them into the hive with a smoker—at least, they commenced after being well smoked, and I suppose that smoking gave them the hint. Where a newly hived swarm departs itself in this matter, it is pretty evident that they are dissatisfied—may be because they had picked out a tree, and were bound to go to the tree instead of staying where they were. A new swarm that does not go to work is very apt to turn up missing some time during the day. Now, I am not sure that I can prove it conclusively, but I am pretty well satisfied that a frame of brood is quite an inducement for such a swarm to go inside and commence comb-building. When you

get them under way, of course they will go to work in surplus boxes or anywhere else.

QUESTION 131.—a. In tiering up supers, should the empty one be put under or over the one partly full? b. If you practice both ways, tell when you put under and when over.

Over.

O. O. POPPLETON.

Under.

A. B. MASON.

Under.

MRS. L. HARRISON.

Under.

P. H. ELWOOD.

Put the empty ones over.

L. C. ROOT.

I have always put it under. I do not know that it is always wise to do so. It works well with me.

A. J. COOK.

I have practiced both ways. All things considered, I prefer placing the empty ones on top, every time.

H. R. BOARDMAN.

I always put the empty ones below the partly filled; but before adding I get the first case at least three-fourths full.

P. L. VIALLO.

I do not practice tiering up, believing that there is a better way. As usually done, the empty super is put under the other, when the first is full.

G. M. DOOLITTLE.

Bees work downward, as a rule. Empty supers should always be put under supers which are almost finished, and not until they are almost finished. Otherwise the upper super will remain unfinished longer than is desirable.

C. F. MUTH.

a. Sometimes under, sometimes over. b. In a heavy yield I put the second under; and, in general, so long as I am almost sure all will be filled. If I am not sure more are needed or will be filled, or in general toward the close of the honey-flow, I put the empty one on top.

C. C. MILLER.

Under, by all means. If you think it unlikely that another super will be completed, you might put the empty one on top; but in that case I would much rather use a set of extracting combs. This method saves all the honey, and avoids the expensive nuisance of a lot of unfinished sections.

JAMES A. GREEN.

We nearly always put the empty super under the one partly full. If the honey in the super is mostly sealed over it should be raised, and the second put under it; but if the super is only partly filled, and another has to be given, owing to a very large yield, the second one may be put on top; but the other way is the better one.

DADANT & SON.

When I have a super from half to three-fourths filled I put an empty super under, if I expect the honey-flow to last a few days longer. But, as in the case of the basswood harvest being nearly over, then don't disturb the super that is partly filled; let them finish that. One super well filled is worth more than two partly full.

E. FRANCE.

I use mostly wide frames holding two courses of sections, and they never need tiering up to carry the crops gathered here. If I used crates, and wanted to put on a second one, I should put it over. I have confidence in my bees that they would go up if it were best to do so. Whereas, if I put their half-finished work up stairs, the danger of its being left unfinished until they began to carry the honey down would be too great.

E. E. HASTY.

a. The empty ones should be put over, and should be put on before the lower ones are ready to seal, except at the very close of the season, when great care should be taken not to add sections until the others are sufficiently filled to insure their being sealed, even if the season should suddenly close. I used to put the empty ones under the others, but found that I often got left with a great many unfinished sections on my hands—an evil which I now almost entirely avoid.

GEO. GRIMM.

As a rule, the partially filled one should be raised up and the empty one placed in under. There are several reasons for this. Prominent among them is the fact that the bees are not as apt to soil some of the combs before all of them are finished. I advise as above. Remember, that in this feature of our business every thing is against us in the fact that, as the room decreases, the colony increases. It is like two men going toward each other. They meet almost before they know it.

JAMES HEDDON.

It has been so much my habit to put the case of empty sections under the full one, that I have hardly tried any other plan, although it is true I have often had just the result mentioned by several above; i. e., a great lot of sections with a little start, and may be a little honey in a good many of them.

QUESTION 132.—*I have a number of combs every spring (from dead colonies) that I wish to keep clear of moths and worms till they can be used at swarming time. What is the best way to manage them?*

Put them into a tight room, and brimstone them occasionally.

P. H. ELWOOD.

I have always saved mine by inserting them in strong colonies.

O. O. POPPLETON.

Put them into a perfectly close box, early in spring.

A. J. COOK.

Leave them where they will freeze during the winter, and you will have no difficulty in keeping them until swarming time.

H. R. BOARDMAN.

Here it is one of the hardest things to do. The best way is to put them on top of strong colonies. This refers to this part of the country, where our bees need no winter protection.

P. L. VIALON.

If hung in a cool airy place, leaving two or more inches between each comb, you should have no trouble from this source up to swarming time. If you do, put them in a tight box or room, and sulphur them.

G. M. DOOLITTLE.

Hang them up in a shed or other out-building, with at least two inches space between the frames; or put them in a hive, in a like shape; raise the cover so as to admit the light; catch one or two spiders and place in each hive.

MRS. L. HARRISON.

The best way with me has been to hang them at least an inch apart, in a dry cool place. If the place is damp, the combs will mold. I have kept them in a dry warm place (the barn chamber) in the same way.

A. B. MASON.

Hang them in a closed room, and burn a little sulphur under them at least twice, at intervals of 15 days. Ours are placed in cold rooms during win-

ter, and we have had, for years, several thousands of them used for extracting.

DADANT & SON.

Clean them up by scraping off all dirt and propolis from the frames, and cut out all bad patches from the comb. I put them into empty hives ready for hiving, and find there is no danger from moths if used during the first season. If they have to be kept over for another season they should be put on strong colonies, to be thoroughly cleaned.

GEO. GRIMM.

I keep them in a dry cool place. They should not be piled so that one comb rests against another. If well spread out, the moth is much less likely to disturb them. Such as contain pollen or portions of brood should be kept by themselves and examined more frequently, as they are more liable to be attacked by the moth. They may be fumigated with sulphur if worms appear.

L. C. ROOT.

I can do it best by piling them on top of other colonies, especially the stronger ones. If taken off here in the winter, and piled up in supers outdoors, leaving the combs three-fourths of an inch apart, they suffer but little damage from moth before I need them the next season. Placing them in a moth-proof room, and smoking thoroughly with sulphur, is effectual but more costly.

R. WILKIN.

We have a plastered room 10 feet square, in which we put all such combs; look at them as often as once a week, after warm weather commences; and if we see any signs of worms we go down cellar and burn one pound of sulphur in a little stove that we have there for that purpose. The fumes go up into the room above through a four-inch pipe. If the room is closed tight, every living thing in the room is killed; then if the room is kept closed tight we have no further trouble. We used to smoke combs in a large box, before we built our smoke-room.

E. FRANCE.

If you can discover the dead colony soon enough, provided they die early enough, expose the combs to a temperature of 16 below freezing, which will be 16 above zero; that will kill every moth-germ. Then all you have to do is to shut the combs away from the miller. On the other hand, if the germs are not destroyed, my plan is to keep the combs in a cool, airy room, hanging them on rabbeted strips nailed to the ceiling, being careful not to let them touch each other. Leave them an inch apart. You will find in this condition the moths will make you no perceptible trouble.

JAMES HEDDON.

I hang my combs in boxes, no closer together than they hang in the hives, exposed to the cold of winter, which kills the eggs and larvae of the wax-moth. Care must be taken to keep mice out, as they will ruin the combs in their endeavor to get at the bee-bread. If the wax-moth gets in the combs before I can put them on hives, I set those boxes of combs close, one upon the other, about 10 high on a tight board, and burn about one-fourth pound of sulphur placed in some vessel (an old pie-plate) in an upper empty box, and cover it up. Sulphur fume being heavier than air, settles down slowly but surely, and kills every moth in the combs.

C. F. MUTH.

Nail strips of wood to the ceiling or rafters of your honey-house, so that the combs will hang on them just as they do in the hives. Hang them up, as far apart as convenient, exposed fully to light

and air, and the moth will seldom trouble them. I have kept empty combs thus through two summers, without any loss. If worms do get into a few combs they may be detected at once and sulphured, either where they are or by removal to a tight box. Never try to keep combs out of sight in empty hives or comb-closets. The warmth, darkness, and nearness together of the combs will invite the ravages of the moth-worm. It is almost impossible to keep them out altogether, and under such circumstances they increase so rapidly that, unless the combs are looked after almost daily, they are never safe, and may be completely ruined within a very few days after they seemed all right.

JAMES A. GREEN.

Keep them in a cool cellar, and the worms are not likely to trouble till it grows warm. Then put a queen-excluder over a colony hardly strong enough for supers; pile on empty combs three or four stories high, and put a frame or two of brood in the upper tier. Perhaps the best way is to put the combs in a hive, put this hive on a stand under the colony, so that the bees must pass through these combs to go in and out the hive. You can put them there as early in the season as you please, for it costs the colony no heat. If there is any honey in the combs, look out for robbers by giving very small entrance. Even then you may need to watch. But you can feel sure a colony of Italians will keep the worms down.

C. C. MILLER.

I have a nice comb-closet, double-walled and sawdust-packed, in which combs are put and fumigated with sulphur; and when I don't get around in time, the worms destroy a jolly lot of them in there. Sometimes a set of combs gets left in a hive in the yard for the whole season, in the care of ants and spiders, and I find they usually do a very fair job at it. Perhaps there is a hint worth heeding there. In the usual careless way of burning sulphur, one third melts and runs down into the coals and ashes; one third merely sublimes, instead of burning as it should, and only one third (often very much less than that, I fear) is properly converted into gas. There should be a tin tube running from the outside, through which the fire can be steadily blown with the smoker.

E. E. HASTY.

The above replies cover the whole ground so thoroughly I hardly need add anything to them. I want to thank friend Hasty, however, for calling our attention to the fact that letting sulphur run down into the ashes is not burning it; neither is making it pass off in vapor, or (as he terms it) subliming it, burning. Where much sulphur is to be burned, I do think it would pay to have some sort of an implement that would make thorough work of it, and convert every bit of the sulphur into sulphurous acid. It seems to me that some sort of utensil could be arranged, with draft enough so as to obviate the necessity of blowing it with a bellows. Can any one tell us more about it? As a rule, I believe that combs will be safe from the depredations of moth if hung up in the open air a couple of inches apart, as has been suggested by many. Perhaps if there were much pollen in the combs, however, this might make a difference; for I believe, as friend Muth suggests, that pollen is the principal food of the moth worm. Another trouble about hang-

ing them up in the open air is, that if they contain a little honey they will incite robbing. Where bees are destitute of propolis, they will often gnaw to pieces the combs, when convenient of access. On this account I should prefer a room, not only to keep out the moth, but to keep out robbers and all other insects.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture, or in cloth \$1.25, or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

G. G. G., Pennsylvania.—Situated as you are, and as in old age you can not climb trees, we would not advise you to allow swarming. Your better way would be to divide. Read the article on Artificial Swarms, and also Dividing, in the A B C.

J. C. G., Virginia.—To get the largest return in extracted honey, you should not prevent your bees from swarming entirely, but you may discourage it largely. Give the bees plenty of room and shade. Do not let them get at all cramped for room. For after or second swarming, keep the cells all cut out but one. See Question-Box for last issue.

HONEY STATISTICS.

H. W. B., Virginia.—The Honey Producers' Exchange, gotten up by eastern bee-keepers, will in no way conflict or interfere with the usual statistics for GLEANINGS. Both will be found to be useful to bee-keepers at large.

SHIPMENT OF QUEENS, AND OUR GUARANTEE.

E. B., Ontario.—We do not guarantee any of our queens beyond safe delivery, because stock of all kinds, whether queen-bees, or cows and horses, are liable to deteriorate at any time after delivery into purchaser's hands, the breeder himself not being in any way responsible for the result, if it can be proven that the stock was healthy at the time of sale.

SAWDUST IN PLACE OF CHAFF; ITS VALUE AS AN ABSORBENT.

W. B. M.—Sawdust will answer in lieu of chaff, in chaff hives. The only objection to it that we know of is that it makes the hive just so much heavier to lift. There is this to be said about chaff, however, that it is lighter, and more porous. O. O. Poppleton rather gives the preference to dry pine sawdust, next to timothy chaff.

HOW TO RAISE PURE ITALIAN QUEENS IN LOCALITIES WHERE THERE ARE BLACK DRONES FLYING.

J. N. P.—Yes, you can secure purer queens by killing off your neighbors' drones by means of the drone-trap, if they (the neighbors) are willing. It is possible that you may be able to raise pure queens; but to do so, see that all drone brood is destroyed, and that all the flying drones are captured in the trap. In the meantime, raise as many Italian drones as you can.

THE DOVETAIL ON THE NEW HIVE NOT A DOVETAIL IN A STRICT SENSE, BUT STRONG ENOUGH.

H. F. H.—The dovetail on the new hive is not a dovetail in the strict sense of the word. It is just the same as the dovetail on the sections, only on a larger scale. It would be impossible to make a true dovetail, and make the hive cheap enough to be used by ordinary bee-keepers; but when the present joint is strong enough to hold a man's weight on its diagonally opposite corners, what need have we of a stronger corner?

WHY BEES DO NOT GATHER HONEY SOMETIMES.

L. L., Arkansas.—The reason, doubtless, why your bees are not doing anything is because there is nothing in the fields for them to gather—or, at least, not at the time you mention in your letter. There are only certain times in the year when bees can gather honey and store surplus. A good deal depends on your locality. If you consult some old bee-keeper in your vicinity he will tell you when you may probably extract honey; but there are exceptions to all periods, when the honey-flow is usually pretty good.

I. F., Tennessee.—The reason why your bees appear crosser at one time than at another is due, perhaps, altogether to the difference in conditions, both in weather and time of day at which you make your examinations. When the weather is a little chilly, or after a rain, or toward evening, or when honey has suddenly ceased coming in, the bees are apt to be cross. As we judge you have the A B C book, please read the article on stings; also "Anger of Bees." After having read these you can better judge of the proper time to examine and handle your bees.

IS IT POSSIBLE TO SET OUT HONEY-PLANTS IN SUCH ROTATION AS TO KEEP THE BEES BUSY THROUGH THE SEASON?

G. D., Australia.—It is barely possible, but hardly practicable or feasible, to grow honey-plants in such rotation as to keep the bees busy from one season's end to the other. We have experimented in this matter quite largely, and we find that it does not pay to set out those honey-plants which do not yield any other revenue than the honey they may furnish the bees. We have been in the habit of recommending, for several years back, setting out only those plants which will pay in the seed crop, providing the blossoms should yield little or no nectar. Buckwheat and alsike are both tolerably safe investments.

IS IT FOUL BROOD, OR CHILLED BROOD?

I. N. H., Ohio.—It is possible that you have foul brood, although from your brief description we can not say for certain about it. We have sent you our A B C of Bee Culture. Please read the article on foul brood. You can tell very quickly whether you have the disease, by a careful comparison of the symptoms. We would advise you not to be in too great a hurry to decide. During the last few days, a good deal of chilled brood has been reported, and we have had more or less of it in our own apiaries. This brood, of course, dies, and sometimes causes beginners to think that they have foul brood. Be sure not to confound the two. Chilled brood is simply brood that has died and shrunken. There is no ropiness about it, and it does not turn brown, as does foul brood.

WILL THE WIND BLOW OFF SUPERS WITH SQUARE EDGES? HOW TO MAKE A $\frac{3}{8}$ -INCH GROOVE.

W. P. D., North Carolina.—No serious trouble has been experienced from supers blowing off, having square edges. The bees will soon stick them with propolis, so they will hold their position. This kind of super has been used for a good many years, and little if any trouble has been reported on this score. Making a projection, or a telescopic joint, for dovetailed supers, would be only adding to the expense of the hive, with but little if any thing to its general utility. To make a $\frac{3}{8}$ groove on a 14-inch mandrel, use a wobble saw. One of your common saws will do, used in connection with wobble washers, which we sell for 25 cts. a pair. There is no cutter-head nor combination of saws that will make a $\frac{3}{8}$ cut as nicely and easily as the wobble saw. By the use of the washers spoken of, any of our common mandrels can be readily adapted to it.

DISINFECTANTS, NONE RECOMMENDED BUT BOILING WATER.

A. C., New York.—We have very little faith in any thing to clean hives of any kind, of the germs of foul brood, except boiling hot water. We have tried acids and such other disinfectants as are usually effective in other maladies. Even hives that have never been disinfected at all, will sometimes contain a new healthy colony for four or five months before transmitting the disease to its occupants. There is a great liability of making mistakes in testing any remedies or disinfectants, for the very reason that it may be months and months before the hive would impart the disease, even without any disinfectant. We feel quite sure you will have further trouble, in a year or so. We experimented very largely in this matter of disinfecting hives, and have tested diseased hives that have never been treated at all—the latter not showing a trace of the disease in the occupants for six months after the old diseased colony had been removed.

WHY THE BEES SOMETIMES CARRY OUT YOUNG BROOD; A STRIPED WORM.

L. L. C., Virginia.—At this season of the year, particularly after cold freezing spells, it is nothing uncommon to find a few immature young bees and larvæ carried out at the entrance. Their presence at the entrance may be due to either one of two causes. First, they may be what we would call chilled brood. Warm weather coming on early in the season, the queen enlarges beyond the capacity of the workers, and during a sharp cold spell, later on, the brood, some of it, chills. The cluster of bees always draws up a little closer during a freeze, and they not infrequently compress beyond the outside limits of some of the brood. Second, it is possible that the colony is on the verge of starvation; and as brood-rearing consumes stores rapidly, the bees, to diminish the consumption, sacrifice the brood by carrying it out rather than to sacrifice the whole colony. There is one other reason why bees carry out young brood; but it seldom happens, except among hybrids and blacks; that is the ravages of the moth worm. Where the colony has nearly been used up by bee moths, mutilated larvæ in all stages will be found near the entrance every morning. The great worm with dark gray stripes around its body, which you mention, we feel pretty sure had nothing to do with the dead brood at the entrance. Its appearance was only a coincidence, we think.—May 2, 1889.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all questions, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

THE MINORCAN BEES.

WILL you please inform me about Minorcan queens or bees? Are they docile, like the Italians, or are they like the blacks? What race of bees are they? Are they any good? Bees are working on maple; no winter loss.

JOSIAH EASTBURN.

Fallsington, Bucks Co., Pa., Apr. 8, 1889.

[Not much is yet known respecting the Minorcan bees and queens. Mr. F. F. Andreu, of Port Mahon, Island of Minorca, Spain, says they are fairly good-behaved bees, though, if we are correct, not quite so gentle as the Italians nor so vindictive as the Eastern bees. They are fairly prolific. Mr. Andreu can furnish such particulars as you require. He writes English.]

BEES JUST BOOMING.

Bees are just booming out here. I have had two swarms, and every hive in the yard is working in the sections.

JOHN BLODGET.

Flag Springs, Mo., May 25, 1889.

SNAKE IN A BEE-TREE.

Not long since I found a bee-tree; and when I cut it, in the hollow with the bees I found a good large black snake, but very few bees, and no honey. From the looks of the comb I thought they must have gone in the tree last season.

S. L. MEDLIN.

Moltke, Tenn., May 18, 1889.

FEEDING INSIDE OR OUT OF THE HIVE.

How far away from my two hives must I put syrup to feed them (I suspect their honey is getting scarce), so that they won't begin to "rob?"

Red Creek, N. Y.

A. D. MCINTOSH.

[Do not put the syrup outside at all. Put it in a pan, or, better, a regular feeder inside of the hive. If there is not room in the hive, put on another super or body, and place the feeder on the frames.]

WHY ARE BEES CROSS DURING SWARMING TIME?

Why is it that bees are so cross in swarming this year? I never had trouble before. I know of others the same way. I have the Italian bee. They have been well fed this spring, and they are strong and healthy.

W. N. GEORGE.

Mechanicstown, O., May 30, 1889.

[If you have had such weather during the month of May as we have had here, I do not wonder that the bees are cross. A great part of the time it has been too cold for the bees to fly, and too cold for them to secrete honey, besides being rainy to an unusual extent. Cold storms always cut off the honey-supply, and make the bees cross.]

HIVING IN 30 SECONDS.

Prepare a one-story hive by lightly nailing the bottom to it with large entrance; leave out the frames. Prepare a one-story hive with frames for the bees to occupy. Place all convenient to where the bees have settled; shake the bees into a large-mouthed tin pan; dump them into the story without frames; place the one with frames on top of it; tap lightly on it and the bees will go up into it, and the work is done. I was timed, a week or two ago, and I hived a swarm in 30 seconds.

Hornhill, Texas, May 17, 1889. G. L. JENNINGS.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows, viz.: *Sheep Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room.* We have also *Our Homes, Part I., and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

MY BROTHER'S BEES.

My brother has six stands of bees. He got 128 pounds of honey last year. We ate over half of it, and sold the rest.

MAUD CHADWICK, age 10.

Lorings, Kan.

TURKEYS.

I saw your notice in GLEANINGS. I don't know much about bees, so I'll write about turkeys. Every one knows that they are easily drowned, and they must be kept out of the water when they are little. This fact every person may not know: That some who have the best success in raising them feed them quite often broken dishes pounded into small pieces.

MARTHA WRIGHT, age 11.

Cooperdale, O., Feb. 26, 1889.

BEES AND TURKEYS.

Papa had 120 colonies last fall. He doubled up some of the weak ones, and now has 114. He makes his own foundation with the machine he bought of you. We also raise turkeys. We have the bronze, and we have a pair of wild ones. Last year we raised some half-bloods that weighed 20 lbs. when six months old. They were the finest in the market. The wild ones are the prettiest, and will fly much higher and further.

RAY C. JOHNSON.

Venice Center, Mich., Mar. 6, 1889.

SWEET POTATOES, HOW TO KEEP.

Father has been keeping bees for 20 years. He caught his first swarm when he was 16 years old. The winter of 1870 they all died, and last winter all died but three stands. He has eight stands now. He uses Simplicity hives. I believe it is not generally known that sweet potatoes wrapped in paper, each one by itself, and kept in a dry place, free from frost, will keep all winter.

Oxbow, Ills.

ALBERT FORREST, age 13.

A SNAIL AND A "POISON THING."

Papa hasn't any bees, and so I can not write about them, only that he is going to get some as soon as he can. One day I found a snail. It was all like glue, and had a cap on his head; and it could raise it up and stick its head out. I liked to watch it crawl. My sister and I went to get some wood, and we found a poison thing. It had two feet in front, like a crab's feet, and had a tail, on the

end of which was a curl, and papa says that they kill people. GRACIE PADDOCK, age 9.

Lucky Queen, Oregon, May 29, 1889.

We are a little curious to know more about that "poison thing" which you mention. Ask your papa the name of it, and tell us in your next letter.

THE CHAPMAN HONEY-PLANT; HOW TO GET THE SEED FROM THE BALLS.

I want to ask you how to hull the seed out of the chaff of the Chapman honey-plant. We don't know how to get the seed out of the chaff. The bees work strong on the balls. I was a bee-man all last summer. Pa has been sick. We got 27 swarms; 4 went to the woods. We got 85 lbs. of honey last summer. It was a poor season for bees here.

Monticello, Ind. HOWARD WHITCHER, age 11.

It is a very difficult matter to get the seed out of the hulls without a machine. The only machine we know of is owned by Mr. Chapman himself, of Versailles, N. Y. He has described it in one of our back volumes, but you might write him in regard to it.

NO CALF TO KICK OVER HIVES.

I am ten years old. I like to read the letters in GLEANINGS. I love to go to school. We have a dear good teacher. She is not cross, as that other boy said his teacher is. We keep several hives of bees, but we have no calf to kick them over; but we have an old horse. He got near them, and they began to sting him. He ran away, and hid behind the stable; but the bees soon found him and stung him very badly. GEORGE TEGMEIER.

Carpenter, Ill., Mar. 29, 1889.

POLLEN FROM PUSSY WILLOW.

I will write you about bees. The first pollen I saw our bees fetch in was the first of March. It was from what we call pussy willow. We have 120 swarms of bees. We have not lost very many yet, but we have doubled some that were too small. We have had two fertile workers. The way we get rid of them is to put a heavy swarm with them that has got a good queen.

SWEET POTATOES.

We tried Mr. Root's plan of cutting sweet potatoes in two, and they all rotted for us.

CHAS. CHAPMAN.

BEEES IN GERMANY.

My father has two apiaries, one in Germany and one in this city. I was in Germany two years ago, in Ottersberg, Hanover. I noticed that there are more bee-keepers there than in any place else. The hives they have there are made of straw, which they claim are the best. I have also seen the Gravenhorst "bogenstulper." My father keeps his bees on Simplicity frames. He has a house apiary large enough for a hundred of these hives. He has the light hives like the Simplicity hives, in Germany. My father has your A B C. I love to read it. Our bees are all gathering pollen, and we are going to move them to the country about April 15.

Jersey City, N. J. ANNA BLANTON, age 11.

SAWDUST PACKING AROUND THE BEES.

My sisters, two of them, tried to keep a hive of bees through the winter. Papa had a sawmill then, and they went down and got some sawdust and put it all around the hive and covered it up, and they kept them through the winter, and in the summer

papa sold the bees. One winter day my sister and I went out where the bees were, and they were on the ground, frozen, and we took them into the house and laid them on the stove-hearth. After a while the house was just full of bees, and we opened the door and let them out, and they went back to the hive again. NANNIE McCORRY, age 11.

Marysville, Ohio.

The bees went back if they did not get chilled before they reached the hive.

A MOUSE IN A BEE-HIVE, AND WHAT THE BEES DID WITH HIM.

When pa set his bees out of the cellar, there was a mouse that had a nest in the mat on top of the hive. Pa tried to catch it, but it ran down in the hive. Pa said that they would make it hot for him in there. Pa waited a little while, and we went back to the hive and found the mouse in his nest almost dead. Pretty soon he died, and I picked 16 stings out of his skin. Our bees are in a fine condition. We put 60 swarms in the cellar last fall, and they all wintered well except four, whose queens died. GEORGE W. RICE, age 12.

Boscobel, Wis., May 19, 1889.

HOW PAPA WINTERED HIS BEES.

Pa takes GLEANINGS and has the A B C. He has 40 colonies of bees, which wintered nicely. He wintered five in chaff hives on summer stands, and 35 in the cellar. He has a tile pipe put in the ground 7 ft. deep, which goes out to the road about 100 ft. This brings in the pure air. Then he has a pipe that runs from the bee-cellar to the stovepipe. On the end he has a large tin, shaped like a funnel. This draws all the impure air up the pipe, and through the stovepipe outdoors. The bees that were left on summer stands began bringing pollen from skunk-cabbage, April 7th. This was the first that we have noticed. ADDIE FLANDERS, age 9.

Boston, Ont.

THE TARANTULA, AND THE EFFECT OF ITS BITE.

Mr. T. G. Ashmead, in March 15th GLEANINGS, is quite right about tarantula nests. There are lots here. We have a little black and white velvety spider that lives a good deal in houses and buildings. They jump and bite. One bit me on the finger the other day, and my finger, thumb, and wrist swelled up in about half an hour. It did not hurt much at first, but got very painful, and hurt me all up my arm. I have been having it doctored for two weeks, and now it is getting better. It broke and discharged a good deal. We have a hive that swarmed twice, and went back. I was glad to see papa's letter in the last GLEANINGS. I would tell you how he got swindled by a New York firm, only you have so much to attend to. All the swarms we have had this year seem to be wasting a good deal of wax. The ground is white outside with the little flakes.

Lytle, Tex., Apr. 23, 1889. WALTER HAILES.

"JUMP OFF, JOE," ETC.

We came from Nebraska. There is hardly any thing there but wide prairies; but in Oregon there are lots of things to write about. There is a large creek called "Jump Off, Joe." It flows through a corner of papa's farm. It is very pretty, there are so many rapids in it. On the other side of it the bank is thirty or forty feet high, straight up and down. From the top of the bank, Red Mountain begins. People say, that in the summer a great many rattlesnakes come out of the ground.

There are many kinds of flowers here. One kind is called "kitten-ears." There are three leaves in the flower, shaped like a kitten's ear. They are covered with little hairs inside. It is a little pink. There are other flowers, called bird-bills. The head and bill are found in the flower. The head is purple, leaves thrown over, and the bill is black and yellow.

JESSIE B. PADDOCK, age 13.

Lucky Queen, Ore., May 5, 1889.

HOW TO GET GRANULATED HONEY FROM THE COMB.

Our bees gathered in a nice lot of honey last summer, but it granulated in the comb so badly that pa could not extract much of it, so he put it in a pan and melted it on the stove. He lets it cool, and, as the wax rises, he skims it off and then strains it through a cloth. It is almost as good as extracted honey. As it is so plentiful, in some cases we use it in place of sugar. We use it in sweetening apple-butter, in making sweet pickle for plums, and baking cake. I will give you a recipe for the cake:

2 cupfuls of honey, 2 cupfuls of buttermilk, $\frac{3}{4}$ cup butter, 1 tablespoonful soda, 3 eggs, 5 cupfuls of flour. Flavor with ground cloves. This will make two good-sized cakes.

CLARA M. STREBY.

Paw Paw, W. Va.

ABSCONDING WITHOUT A QUEEN.

Mamma had a swarm of bees go off and leave their queen last summer. They got the swarming fever, and swarmed out two times; then she killed the queen and gave them a new one just at night. They accepted her, and on the next day swarmed two times. She then caged the queen, putting on the tin slide so that they could not gnaw her out. The next day they swarmed out and went off, and left the queen in the hive in the cage. We think this proves clearly that it is the bees that get the fever, not the queen. It also proves that bees will go off and leave the queen.

BIRDIE RUSSELL, age 10.

Beatrice, Neb., Apr. 21, 1889.

Your letter does not necessarily prove that the bees are the first to get the notion of swarming, but it goes a long way to prove that a swarm may abscond without a queen. However, unless we can get more testimony to the same effect, we should incline to the opinion that the bees had some sort of a queen with them—very likely a virgin, whose presence in the hive your mother did not know of.

A TALK TO THE LITTLE FOLKS.

BORROWING TROUBLE; CLIMBING MOUNTAINS, ETC.

DEAR CHILDREN:—I know a little boy who always thinks you mean him when you say any thing was not done just right. Do you know any one like that? He sometimes begins to cry and fret, and gets a scolding, when no one had thought about him when the first remark was made. That is caused by self-consciousness, or thinking so much about himself. Don't you think he must have a queer time? Certainly it is not altogether a happy one. Real troubles are hard to bear; but imaginary ones are horrid. Now, if any one is thinking, "Why, I believe Aunt Katie means me, and I am not going to like her any more," just stop a moment and say to yourself, "What is she saying this for—so that she

will be any better off, or is it me she wants to have a 'gooder' time when I am among folks? I know I have got so that I can not go anywhere without getting mad at some one for talking about me, or commenting on the clothes I wear, or something—or at least I think they are doing it, if I catch them looking at me. I guess she does mean me."

Not long ago a young girl who had made herself quite a favorite among her schoolmates saw the boys and girls whispering together and looking at her. She asked them what they were talking about; but they only laughed, and would not answer her. At noon time she saw them whispering together in little groups, and she would run up and try to hear what they said; but they would stop talking when she came near. Instead of paying no attention, and being happy some other way, she began to pout, and finally said to herself, "I won't come to this school any longer. They are a mean, hateful set."

At night she went home feeling very unhappy. Her mother had been told that the young folks were going to surprise her daughter that evening, so she advised her to go to town with her father and she would feel better when she got back. While she was gone her schoolmates came, bringing cake, candy, and oranges. They all hid in one of the rooms; and when Jessie got back they rushed out into the room where she was. She was so astonished that they all laughed, and told her that they hoped she would not be mad at their whispering together any more. She begged their pardon, and I think it taught her quite a lesson.

Now, after our little talk, suppose you all go with us for a grand picnic. About ten miles, straight up the valley, is a range of mountains, and away up on one of them is a lake called Zaca Lake. We should like to go and camp awhile, but we have not time now, so we will just take our lunch along, for it will be about noon when we get to where we shall have to leave the horses, or at least the wagon.

"Where are John and Ernest?"

"Oh! they have got so impatient they have started on. Are we all ready?"

"Yes."

Then away we go up the main road about two miles, and now we take this road to the left. How beautiful every thing looks! The hills are blooming with flowers, and the wheat and barley in the valley are growing finely. It is February, and the air is cool this morning; but now the sun is peeping up over that hill in front of us, and we shall soon be warm. See how lovely the hanging moss looks on those white-oak trees. It looks as if it were threaded with beads. The drops of dew sparkling in the sun make it look that way. Here we are, four miles from home, and we can not see those impatient boys yet.

"Oh, yes! I see them, mamma," shouts Lewis.

"There they are, at that gate."

Sure enough, and there are the two dogs along with them.

"Well, boys, I hope you are ready to ride with us now."

"It was so cool we enjoyed the walk very much; but it is warm now."

"Isn't it a lovely morning?" says our neighbor John; and into the wagon they climb.

"Let us see; we must turn to the right pretty soon. There is where Mr. Edgar used to live. Why, they have got the road fenced on each side since I

was here last. Doesn't it make a pretty lane? Such lovely feed for the campers' horses! Yes, and here at this lone windmill is where several have camped. We all must have a drink from the large tank, and the horses can be watered at the trough. No, there is no gate. You must hand it to papa through the wire fence. How refreshing a good draught of water is! Even the baby drinks, and smacks her lips with pleasure."

Away we go again, getting nearer and nearer those majestic mountains. We have been coming up faster than we realized, for they do not look so very high now. Yes, we must be about 1000 feet above our house. We are now about ten miles from home. What a lot of lovely land, to be used just for cattle! It seems a pity that it can not be divided up and made into small farms! Well, it will some time, may be, but not in our day. There comes a buggy with two men in. Let us ask where the road turns off from this to go to the lake. The first gate to the left, at the foot of the hill. Here it is, and, unlocked. Isn't that good? Mr. C. told us we might find it locked, and then we should have to give up our visit to the lake. But we are lucky this morning.

"I knew we should be," says John, "for we have found so many horse-shoes; that means luck, you know."

"Whew! I wish they had not plowed into this road, as it makes it so hard for the horses."

"May be this is not the road."

"I will run on ahead and see," says Ernest.

Soon we see a traveled road on the other side of the fence, and we pass through another gate and enter the woodlands at the foot of the peak where the lake is. Isn't this picturesque? Sylvan glades, browsing cattle, babbling streams, and singing birds. Can we cross on that frail-looking bridge? Oh, yes! with care. Well, I am glad we are over that. I haven't drawn a good breath for two minutes. Dexter, the colt, was quiet, and went along as well as Bess. A good gentle team is a pleasure when we are going over bad places. We are climbing up, and we are nearing the camp, I should think.

"Well, I am agreeably surprised," says one.

"How?"

"Why, you know the mountains look so rough and rugged from our place; but see how pretty they are, now we are upon them. Flowers, trees, green shrubs, and wild oats cover the steep mountain-sides, and lovely glades tempt us to camp on every side; and, see, we are so high up that the pine-trees begin to be scattered among the others. The native pines rarely grow on the hills. They grow only on mountains where snow falls during the winter months. How proud they look! How straight and trim! They seem to point above to Him who made us all. Oh, what a pretty camp! I guess this is as far as we can go with the team, so we will jump out and you older boys help unharness the horses, and the little boys can pick up sticks for the camp-fire. I think that must be water from Zaca Lake in that stream, it is so clear and soft. There is the fire; now put on the sauce-pan full of water, and we shall soon have some coffee. Then while the horses are cropping the tender herbage we will eat our lunch. Why, have you got done already?" we say to the big ones.

"Yes, for the present. We want to see that wonderful lake we have heard so much about."

"Shout when you get up part way, if you think mamma could climb up there."

We soon hear a shout; and as we have satisfied our appetite we put away the things, give the horses some barley, and, with papa carrying the baby, away we go.

"Come on, little ones; not too fast at a time; it is quite a long walk up hill, so stop and breathe a spell. I hope you all have old shoes on, for this rock wears the leather very fast. There, now, we have got over the worst of the road. See what a nice path has been made in this black earth. What queer kinds of bushes, and such lovely ferns! We will get some when we return. The manzanita, with its smooth red bark and the gray-green leaves and white blossoms, would be quite an ornament in a front yard. Oh! pine nuts! See, the boys are getting nuts from those large cones. Sure enough, the big boys have found a lot. They are rather dry, but quite sweet. Where is the lake? Oh! just around there, and they point to the right. You won't see it till you get to it," so we all jog along, looking for the first glimpse with one eye while we are admiring the pine-trees, which now predominate, with the others. "Just see that sharp point of mountain. The trees look as though they would slip off, it is so very straight up. The lake is at the foot of that peak. Oh! there is a log house, and here is the lake."

A hush falls upon the whole party as we stand and see the strange view before us. A small body of water is seen, with rushes and other water-weeds fringing the edge, and sharp mountain-peaks all around it but just where we stand; and over all, that strange awe-inspiring hush that pervades all forests and mountains. I like to enter those vast solitudes sometimes; but the pioneer spirit is not strong enough within me to wish to linger long so far from human habitations. There have been two log huts built by campers, but they only enhance the lonely feeling, to me. They look very forlorn. We sit down and impress the picture before us upon our mind, and listen to the cry of the loon, the only living thing besides ourselves to be seen. The sun has begun to go down the mountain, and we must go too; so with one last look we return down the path we came, wishing we could go down from the other side of the lake, but that would make our journey 20 miles further, so down we go, plucking flowers, ferns, branches, young pine-trees, and the sweet laurel leaves. Now we slip and slide when we get to the shady place, and how hungry we all are now we have got back to camp! We hastily eat the remainder of our lunch, and now we are trotting along on our homeward way. As we cross the creek the last time, we will have the big boys fill these two bottles with water, and we can give our friends at home some of the famed waters, even if they could not enjoy the picnic with us. The sun is down, but we shall soon be at home. How pretty the moon looks, peeping at us through the trees! Here we are. Thank you for going with us.

Los Alamos, Cal.

AUNT KATIE HILTON.

And, good friend Aunt Katie, we thank you also for taking us along. Your description of mountains and mountain travel is very vivid and lifelike, and a dozen things remind me of that wonderful trip of mine. If I am correct, the Californians are more in the habit of going out picnicking, and taking such strolls, than we are here. Perhaps it is a lesson we ought to learn.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

WET WEATHER.

WE have been having two or three weeks of bad rainy weather. Locust, raspberries, and other kinds of bloom have been out in great profusion, but the bees were unable to make use of them. White clover is out in unusual abundance; and although it has been in blossom for a week, the bees have been forbidden by dame Nature to visit it. To-day, June 10, the weather promises to be favorable; the sun is shining brightly, and the weather is warm. Yesterday, between the light warm showers, in spite of the heavy wind, the bees were out doing their level best. There is still strong wind. No honey has been gathered to any appreciable extent so far. In fact, we have been

OBLIGED TO FEED

for the last two weeks. I believe I never saw colonies use up stores as fast as ours have done for a few days. One or two stocks that had been recently fed, starved in spite of us. Starvation was not due to neglect, but due, rather, to the inferior quality of the food. Having some old soft maple sugar in cakes, much of it unsalable, we made it into a thin syrup. This we fed out entirely. One or two of the colonies, after feeding, showed signs of dysentery. After feeding this stuff I came to the conclusion that granulated sugar, even at its present high price, is just about as cheap as the inferior sweet, because it is better and goes farther. Lately we have been feeding granulated syrup, and we have since noticed none of the bad results.

A large majority of our colonies, I feel sure, would have starved had we not fed them. It is rather discouraging to feed when white clover, raspberries, and locust are successively in bloom in such profusion, and yet the bees are not able to get the sweets. The bountiful rains we have been having, I am in hopes will more than make up for lost time. As we feed only to keep brood-rearing going steadily, we feed small quantities daily, and for this we use butter-dishes. For stimulating feed, I do not know of any thing we like better; even throwing out the item of cheapness, I am emphatically in favor of the butter-dishes. When we moved the colonies down into the basswood orchard, in the Dovetailed hive, we had a great many wire-cloth screens. These screens are simply a rim $1\frac{1}{2}$ inches deep, covered with wire cloth, the rim made the exact size of the Dovetailed body. Well, we placed two butter-dishes on top of the brood-frames of each hive, and placed one of the wire-cloth screens over the whole. Through the wire cloth we poured the feed, put on the regular cover, and every thing was done. To give the next feed, all we had to do was to raise the cover and pour the feed through the wire cloth. This arrangement proved to be exceedingly simple and very satisfactory.

FEEDING WITHOUT A FEEDER.

We ran out of butter-dishes and wire screens. I told our Mr. Spafford to pour about $1\frac{1}{2}$ or 2 pounds of syrup all over the brood-combs and among the bees; if the colony were weaker, to give them a proportionate amount in this way. We tried this on about a dozen colonies. In about twenty minutes more we examined those so fed, and found that they were all nice and dry. Once or twice I feared they might not be able to recover from such a sousing of syrup. This dose was repeated a number of times, and the bees each time recovered from it. The colonies were very strong, otherwise I should have hesitated about giving them such a smearing. For feeding this way, the Dovetailed bottom-board worked very nicely. By referring to the annexed engraving,



which I gave some time ago, you will see that the bottom-board is sunk. By tilting the front end up temporarily, we found this bottom-board would make a very good feeder. In pouring the feed right over the combs, you observe that the bottom-board will take the excess, and retain it there till the bees can use it. The excess of even two or three pounds can be held in this way, and I do not know but it makes a very good feeder.

CARNIOLANS.

Several years ago I gave a rather adverse report of these bees. Feeling that I had perhaps been a little too hard on them, I requested one of the leading breeders of these bees to send us one of his best Carniolans. He did so, and we have had them for nearly a year now. I was disposed to feel favorably impressed with them, and desired Neighbor H. to take them to one of his apiaries, and, if they proved to be a good race of bees, to make preparations to raise them in one of his apiaries, isolated, of course, from all other bees. Chancing one day to think of these Carniolans, I asked him what he thought of them. Well, he didn't "just exactly know"—his answer indicating pretty plainly that he liked the Italians better. To satisfy myself directly, I one morning hitched up Billy in the cart, and started. Neighbor H. was not in the apiary at the time, but I readily found the bees. Of course, I proceeded to open up their hive without smoker or veil. Not endeavoring to be exceedingly "rambunctious," as the boy says, I proceeded to open the hive, using ordinary caution. I had scarcely got the cover and the cushion off, than the air was filled with Carniolans, buzzing around in a to me unusual manner. They began to sting, but I held my ground. Neighbor H. then came around, and I asked him where his smoker was.

"Oh!" said he, "you don't need any smoker for those bees," and a little sarcastic smile played over his face. I had explained to him that they could be "handled without smoke." However, I insisted on the smoker, which was brought, and used

upon the bees. Instead of quieting them down it caused them to fly into the air like a little swarm. From the frames lifted out, the bees ran down, and hung in little balls, and in the hive they were running about in wild commotion. I was almost positive they were black bees; but Neighbor H. assured me with all confidence that those bees were the progeny of the very same queen I had given him to test. They resembled very much the Carniolans we had had on a former occasion, which were imported. They were pretty cross, and I got one or two quite severe stings. If I were to judge the Carniolans by this colony alone, I should say that, when they do sting, they sting with a vengeance. To tell the truth, I wanted to be favorably impressed with the Carniolans, and I do not know but I should like to be so impressed now. One quite serious objection, however, and one that has been mentioned before, is, that if there were black bees in the vicinity in which they were reared, it would be almost impossible to detect the crosses, except, perhaps, by their behavior. In fact, from what I have heard in general from the Carniolans, I should be inclined to believe that the colony above mentioned, instead of being pure, is a cross of the black bees. If such is the case, then even the breeder himself may be easily deceived. How is he to know, then, whether he has bred the race in its purity, if he depends upon mere looks? This report of the Carniolans applies only to the one colony in question. I hope further trials will give me a better impression.

IMPORTED ITALIANS.

Perhaps I should say right here, that Neighbor H. said he had an imported Italian colony that had got their hive crammed full of honey, when other colonies were on the verge of starvation. In fact, he intimated that she was a better queen than the Honey Queen I mentioned in last GLEANINGS. While there I requested that he would not show me the imported queen, adding that I wanted to see if I could discover the colony in question by the peculiar energy at the entrance. Not being acquainted with the apiary, I did not know where this or that queen was. We looked at a number of colonies, and finally I ventured to remark, rather cautiously, "Is that the imported queen?"

"That is the one," he said. "Now," said he, "lay your smoker down; pull it open as roughly as you please."

I did so, and every thing was perfectly quiet. I pulled out comb after comb, and there was not the slightest demonstration of any hostility on the part of the bees. Yes, it was true that there was a great deal of honey in the hive.

"Don't you sell that queen," said I. "Keep her for raising queens. A queen whose progeny is gentle and exceptionally good workers, is worth something."

Neighbor H. has already got cells under way from her.

While I was looking over the bees, we came across one other imported queen. Her bees were just as gentle, and were doing nearly as well as the first one we examined.

I told Neighbor H. that he had better keep that one too. The more I examined the apiary, the more I became convinced that the imported queens were doing the best. They were certainly the gentlest.

Some weeks ago, Mr. Spafford incidentally remarked that the colonies having imported queens were doing the best on apple-blossoms.

"Yes," I said, "I have noticed the same thing before. They are not only the gentlest bees we handle, but are just as good, and very many times a little better honey-gatherers." As I have before said in this department, I now repeat again, there is something in the climatic conditions of Italy that produces a hardy, gentle, and industrious race of bees. The bees of the imported Italian colonies are, as a rule, leather-colored. I have also noticed that the very light Italians—those that looked real pretty, such as bee-keepers like to exhibit at fairs and elsewhere, *are not the bees for real business.*

THAT HONEY QUEEN.

That "honey queen" in the basswood orchard, mentioned in our last issue, is still doing well. Although very yellow herself, her bees are quite dark, leather-colored Italians. While the other colonies have required constant feeding, these bees have kept their brood-nest pretty well supplied with natural stores; but unlike the imported colonies referred to, they are pretty cross. The first time I opened them up and hauled them over, I got a good severe stinging, and I was heartily glad when I closed them up again. By the use of plenty of smoke I find since that I can handle them quite easily, but they will not tolerate even then very many unnecessary jars.

"HAS HE AN AX TO GRIND?"

As I read down this report, I have been wondering whether some good brother might not add, "Has he an ax to grind?" Well, I admit that it looks a little so; but I have tried to be candid, irrespective of the aforesaid "ax." If I can not state a thing honestly, for fear that somebody will say that "he has got an ax to grind," then I am in a poor plight indeed. If the Carniolans are a desirable race (and they may prove to be such), then we can sell them just as well as the imported Italians.

LATER.

June 11.—Since yesterday I notice that the bees are beginning to make their combs bulge a little, and white-clover honey is at last coming in. The weaker colonies do not show very much new nectar. The stronger colonies have gathered enough to fill their brood-nest to perhaps two-thirds or three-fourths of their capacity. It is a little cooler to-day, and bees are not flying to the extent they were yesterday. Rain and cloudy weather seems to be the order of the day, with a little sprinkling of sunshine now and then. If this order were reversed, we should have a good flow of honey, I think. All the conditions are supplied except sunshine and hot weather.

This afternoon the sky has cleared up and it is warmer. We hope for the best.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

THE KUMERLE LIMA BEAN, AND GETTING TWO CROPS IN ONE SEASON.

YOU asked such of your readers as can raise lima beans *during the winter* to write to you. I have seen but one winter in 18 wherein they could not be raised here, and they have been repeatedly raised for home use. They live two or three years, and with but little care, and make, on suitable soil, even better yields than northern grown seed. The seewee, planted at the foot of old stumps, grows readily and with no care after it begins to run, and bears enormously. Early in October is the best time for planting here, as the weather is moderately cool then, and there is ample time to grow before the coldest weather comes. I could undertake $\frac{1}{4}$ acre or less.

Palma Sola, Fla., May 26, 1889.

J. F. SIKES.

Well, I declare, friend S., we have got it after all, haven't we? But what you say about lima beans living two or three years is to me astounding. I saw pumpkin and squash vines in California that had been growing for several years; also tomatoes; but in some way I had got it into my head that a bean, after it had borne its crop and matured its seed, had got to die. Well, we shall have to live and learn. As soon as the Kumerle lima beans are ripe enough to grow, I will send you some seed, but I hardly think I shall have enough to spare for a quarter of an acre. If you plant seed in October, as you state, what time would they ripen? Unless they would be ripe enough to plant by June 1 in our locality, they would not be of much use. Last season we planted a long row of the kidney wax beans. The seed was gathered just as soon as the first ones were apparently full sized. But only a bean or two came up in that long row: these were feeble, and amounted to nothing. From this I infer that the seed must become perfectly ripe and dry before it can be planted to grow again. I do not quite understand it, however, for our lima beans, which we gather green, and shell for the wagon, have, during very warm weather, heated in the little baskets so as to send out sprouts half an inch long, and that in one night. Now, I supposed that of course these lima beans, if planted in the ground, would grow. But my experiment seems to indicate that it is a mistake. It may be, however, that I did not let the beans get ripe enough. One thing that makes me think so is that the beans that were planted in this long row were perfectly white, and looked like ordinary kidney beans. On the strength of this I said in the price list that kidney wax beans were white, not remembering at the time that the small packet I planted to get my first ones started had a colored spot just about the eye. My lima beans, however, will be ripe and dry long before October. So, friend S., you and I are going to test the matter of getting two crops of lima beans in one year. If you succeed, the Kumerle lima bean *won't* be worth its weight in gold in 1890.

OUR PATCH OF JESSIE STRAWBERRIES.

Last fall, after our Early Ohio potatoes were dug, I had the ground cultivated very smooth and fine, and then covered with as much stable manure as we could well plow under. It was then plowed, harrowed, and marked out with our disk furrower, leaving wide deep furrows like paths. These paths were three feet wide from center to center. While the furrower was going over the ground, a wooden tooth was fastened temporarily so as to make a shallow groove in the center of each one of the raised beds. My idea was, that if strawberries were planted in the center of these raised beds they would not suffer so much from frost, because the paths or furrows would let off all the surplus water during winter. I think that strawberries, like wheat, are injured in winter because of a surplus of water standing on the ground. Remember, this ground is already well underdrained, but our clay soil is so slow in letting the water pass away, that I felt sure the above arrangement would help the matter of having the plants thrown out by the frost. Well, the mild winter may have had something to do with it; but as it was, not a plant in the whole 3000 was injured in winter. There are nine rows of the berries. Three of them are Sharpless, and the others Jessie. Strong plants were selected, and they were put in in the fall, with our transplanting-tubes; all runners being nipped, they of course made a good growth, and went down into the rich ground very securely. Not a plant died in transplanting, that I know of. You will remember that, in our list of plants, I have mentioned the Jessie as holding itself up out of the dirt. Well, we were greatly puzzled because this year the Jessie did nothing of the kind. Perhaps the plant might be excused for omitting this part of the programme when I tell you that the berries are, many of them, more like peaches than strawberries, so far as size is concerned. Another thing, we have heretofore supposed that the Jessie was a regular-shaped berry. This year they are broad, wedge-shaped, double, and in almost every respect just about like the Sharpless; in fact, everybody calls them the Sharpless, only they were ripe before a single one of the Sharpless had got its growth. They are so luscious that the robins, the hens — yes, even the rats, have gone to sampling them. We do not have many rats, but there were enough to make a start on one end of the Jessie berries. Besides the above enemies, the small boys of the establishment got to picking them, and eating them green by the pocketful before I knew it. Just as soon as there is a blush of red on one side of the berry they are very good to eat. My cousin, D. E. Fenn, of Tallmadge, O., has just paid us a visit, and he is a man pretty well acquainted with horticulture in all its branches, especially strawberries. He pronounced my patch of Jessies the finest thing in the line of a strawberry that he had ever seen in his life. Now, he is a comparatively near neighbor to friend Terry, and to Matthew Crawford besides. We are still picking off the runners and

keeping out the weeds, and that patch of strawberries is going to make a show before winter comes, I tell you.

We have Bubach and Haverland also, fruiting. They are much like the Jessie, only the Bubach is still larger both in fruit and foliage. In fact, it is immense all around. You know the Bubach is said to be the only successful rival of the Jessie. I expect to sell plants this fall. The Haverland has a better shape, but it is hardly as large. Both are exceedingly strong growers. I have just got four of the plants of the new Miami, introduced by our old friend J. D. Kruschke, one of the bee-fraternity, and a contributor to GLEANINGS some years ago. The Miami plants were very small, feeble ones, received late in the fall. They are now making an excellent growth, and the berries differ from any thing else I have seen, by ripening all over at once. There is not any red side where the berry is exposed to the sun. It is a beautiful red on all sides at once.

ALASKA PEAS.

We have succeeded in having a fine crop of peas by the first of June, when nobody else has any anywhere about. For several years I have been planting peas in February and March, but they did not mature any earlier than those planted a month later. I finally decided that some poorer ground might give us peas sooner. Well, the poorest piece of ground we have on our plantation is a little knoll facing the south. It looks and acts as if the surplus soil had been removed for some purpose years ago. In fact, it would not even raise grass; but the dry clay was visible the year round. I thought this would be poor enough for early peas, so I turned under some old well-rotted manure, applying it in the fall. This spring, before the frost was out of the ground, and as soon as the clay was dried out hard enough so it would rake up on the surface, I put in five rows of peas. As I supposed they would make only a feeble growth, they were planted only 18 inches apart. They came up as I expected, very quickly, on account of the sunny spot they occupied, sloping toward the south. When they were six inches high, I purchased five rolls of poultry-netting, with 1½-inch mesh, and only one foot wide. A stake every 25 feet held the netting just so the peas could reach the lower selvage edge. They "caught on" very soon, and my little patch of peas has been all the spring a pleasant thing to visitors. By the way, we can now furnish a strip of poultry-netting of the above dimensions, 150 feet long, for only 50 cents. Can you get any thing cheaper for early peas? We have picked about three bushels from this little patch, and there will certainly be six or seven bushels more. What do you think of it? Ten bushels of peas from a piece of ground about 10 feet wide and 150 feet long! The first of them sold for \$2.00 per bushel; but now we get only 40 cents a peck. As soon as the peas are cleared off I am going to try the early strawberries on this poor, hard, clay soil. They probably will not make very much growth, but I suppose they will bear

berries quite a little ahead of our highly manured plots.

MYSELF AND MY NEIGHBORS.

Incline your ear, and come unto me: hear, and your soul shall live; and I will make an everlasting covenant with you, even the sure mercies of David. —ISA. 55:3.

ONE Sunday morning our pastor changed places with a brother-minister in an adjoining town. I think I have before told you that I have a particular love for preachers. I believe I love all humanity; I love my fellow-men. I love to be with them, and I especially enjoy getting acquainted; but if there is any one class of people I love particularly it is God's ministering servants. I know they are criticised and found fault with; but never, since my conversion, has it ever been my lot to find a minister of the gospel who did not have a good deal that was lovable about him. Some of them have queer, odd ways, just as you and I have, and it may take a little charity for a man to get right well acquainted with them; but the single fact alone, that they have given themselves, heart and soul, to the cause of Christ, has never failed to draw me toward them. Well, when this new minister stepped into the pulpit I of course began to get acquainted. In his opening benediction I got a good deal acquainted. It was different from any opening service I had ever heard. I decided at once that the man was original. It made me feel as if we were a great family of brothers and sisters having family worship at home, around our own fireside. You may be surprised to have me say that I can not remember his text; and as our good brother has not furnished it in the following paper, I have had to substitute one of my own.

There were several points in the sermon, that interested me so particularly that I begged him to let me have that part of it; but although he had some written manuscript before him, he told me that the part I wanted had never been given before, and he was afraid he should never be able to give it again just as he did that morning. You see from this statement how much help it is to a speaker, and especially to a preacher, to have a good-sized, intelligent, and appreciative audience. He, however, promised to do the best he could, and here it is. Now, he wrote one page specially to A. I. Root, that he did not intend to have put in print; but I am going to take the liberty of printing it with the rest, just because it helps you so much to get acquainted with him. It is something a little aside from the sermon, and sounds like a few kind words spoken after he had got down among the audience—or, if you choose, just as he was shaking hands with A. I. Root and family. Now, I want to tell you, dear friends, that A. I. Root and family—yes, clear down to six-year-old Huber—are found, as a rule, occupying a seat close by the pulpit. I do not know how it comes that we always sit there; in fact, I do know that my good wife

has protested a great many times because I insisted on getting forward in such a conspicuous place. But there are several reasons why I like to be right there. In the first place, I like to be near the speaker, especially if, as I have said, he is also a *preacher*. And right at the end of the seat where I sit is a door that can be opened without making much disturbance when there is a lack of fresh air. It gets opened, too, I want to tell you, even if some of the elderly friends do look as cross as they dare look at A. I. Root. Now, then, friends, I think we are all ready to let Bro. Gammell talk to us.

Dear Mr. Root:—I hope you will find this inclosed copy about what you expected it would be. I send it along, with the prayer following it that, if you print it, it may do good to some soul waiting for some such message. You will remember to send me a copy or two of the magazine containing it. We have been reading from your books, and probably no family in the land got so suddenly acquainted with A. I. Root and his travels as we did in one day—Monday. Your account of that Sunday afternoon at Manitou reads like a chapter out of Augustine's Confessions. We enjoyed journeying with you.

Yours in Christ, S. D. GAMMELL.

Wellington, O., May 2, 1889.

A HUMAN INSTINCT.

An extract from an address to some bee-people at Medina, O., April 28, 1889.

You say the bee has instincts, but have not men instincts also? What do you call that frequent and most natural resort to prayer in presence of a momentous crisis in the personal experience, if it be not an instinct of the soul?

Blind Homer declared, a thousand years before Christ, "All men have need of prayer." I agree with him when I hear that the surgeon, about to perform an operation that might be fatal, laid aside his knife for a moment and fell on his knees with an appeal to almighty Wisdom and Goodness that his hand might be steadied and his stroke sure when a fellow-being's life was involved.

My agnostic friend, would you object if your surgeon should keep you waiting a moment before some dangerous service you had asked of him, that he might pray? Would you not hope that his mind and soul would at least recover poise and composure, and his success be more certain? As for me, that sort of physician would commend himself at once.

So, again, I agree with that old heathen poet I have quoted, when I read of the painter, Fra Angelico, how he would not put brush to canvas, nor mix the oils for his daily task, until he had prayed that his soaring genius might be visited with an inspiration from the Source of all beauty and splendor. No wonder that Ruskin can say of him, "By purity of life, habitual elevation of thought, and natural sweetness of disposition, he was enabled to express the sacred affections upon the human countenance as no one ever did before or since." Is it too much to claim that here we have an illustration of cause and effect, that this painter's success was in part dependent on his praying?

Once more, did not the astronomer Kepler respond to this instinct, when, in the midst of his discovery of celestial laws, filled with wonder and admiration at his vision of stellar harmonies, he cried out: "I

thank thee, O God, that thou hast permitted me to think thine own thoughts after thee"? And you and I, good friends, if we are true to our better selves, standing at the star-gazer's side and listening while he describes to us some raging cyclone in the sun, or a new volcano reddening the planet Jupiter's sky, or some other heavenly wonder, if we are true to our natural instincts we also shall thank God that he has taught men to use their lenses and tubes with such skill that they can see what he is doing in the star-depths, and think his thoughts after him.

Suppose further, that it is only a tradition that Washington was heard praying by himself in the wintry forest at Valley Forge in a strait of generalship, and that Stonewall Jackson, leading a charge, himself in the saddle, flung up his arms in momentary prayer to God; even if these be myths they reflect the thought of many minds, and the common expectation that such an act is becoming to the time and place. It is the general acquiescence in the blind bard's dictum, "All men have need of prayer."

Again, it is generally supposed that the times of Franklin and Jefferson and Paine were conspicuous for their skeptical tendencies. What, then, shall we say of the fact that the first act of the Continental Congress which met at Philadelphia, Sept. 6, 1774, was the adoption of a resolution that the Rev. Mr. Duché be desired to open Congress with prayer at Carpenter's Hall at nine o'clock? In this stress of statesmanship, men had need of prayer. Men are driven to it as a last and only resort, as shipwrecked sailors are driven to take refuge in the rigging and topmasts of their sinking ship. I was reminded of this the other evening when I heard what I will call "The Surgeon's Story." He was in charge of an army hospital in the late war, and received one day a wounded soldier, a mere boy, shot nearly to death. Day after day the doctor sought to reveal his dangerous condition to the lad; but his light laughing spirits would not take the plain hints and intimations of his medical attendant; and yet he was slowly, surely dying. One morning the doctor said, "My boy, I've tried to tell you that you could not survive this wound; that you must certainly die; but you wouldn't believe me; now I tell you plainly, that before noon you will be dead."

Again that stolid stare, that imperturbable spirit, that unresponsive mind, and the surgeon went away. But in an hour he was hastily called, and the now conscious and aroused boy broke out, "O surgeon! I know what you mean now. I must die; but what shall I do? I'm not prepared to die. O doctor! I can't die. My father was a minister, and my mother taught me to pray; but I've been a wild, bad boy. O surgeon! what shall I do?" And the good surgeon felt himself but poorly qualified, in his little knowledge of Christ, to give this dying boy an adequate reply, and could only stammer, with tear-filled eyes, "Your mother's religion, my boy; your mother's religion." What else have you to offer, my agnostic friend? What else but this? It is the natural cry of the soul in mighty emergencies, face to face with awful duties, face to face with the impenetrable mystery of death and eternity. It is the cry of the soul lifted up in prayer—the prayer learned, it may be, at mother's knee—to the eternal Goodness.

The bee, by instinct, knows where to find its honey and how to build its cell. Shall not the imperial

soul know where to find its joy, and how to build for itself an eternal mansion, abiding instant in prayer, following the supremest instinct of the god-like soul?

You are right, brother Gammell; I am sure you are right. When God endowed the bee and the lower forms of animal life with unerring instinct, he surely did not forget man, who stands at the very head of the animated universe; and he surely does not leave him in darkness, and alone, when these momentous crises come, as they do most surely come to us all, sooner or later.

Yea, though I walk through the valley of the shadow of death, I will fear no evil; for thou art with me; thy rod and thy staff they comfort me. — PSALM 23:4.

Thousands of times have I been comforted, and made to feel safe and at ease—yes, thousands of times has he helped me to be cool and collected when important issues were at stake. Dear brother, since you gave us that sermon, and since the foregoing was penned, one of the greatest calamities has come to us as a people, that ever tried men's souls since the settlement of America. Over ten thousand people were hurried to sudden death within one short hour. No doubt at such a time there was much praying; in fact, we have many records of the prayers that were offered up. And some of the newspapers have been in such haste to tear down the Christian religion that they have boldly declared that God did not hear or answer in this time of trouble. One newspaper even seems to delight in telling of certain people who discarded their Bibles, and refused to hear a word from their pastors, because God permitted such a thing to happen. Perhaps I am touching upon a subject too deep for me. Very likely I can not tell how I should behave myself under a similar trial; but, dear friends, if there be any among you who have been troubled by these newspaper accounts, please remember that God has never promised to exempt even his devoted followers from sickness and suffering, from accident and death. He has, however, promised to give us grace to meet all these things with courage and calmness and trust. Jesus breathed, with his dying breath, "Father, into thy hands I commend my spirit." Before the ordeal came, he did once pray that the cup might pass from him; but after he had risen above this human weakness, he met suffering and death in such a way as may well be an example for all mankind. Should I be overtaken by any such calamity, I hope and pray that I may have grace to pray as did the Son of God. When the question first came to me, I at once decided that those who prayed simply for longer life (or even that a loved member of their household might be spared a fate that seemed to have come to all round about them), had a wrong conception of God's promises; and in thinking over the matter, and mentally going over the Scriptures, the answer seemed to come to me, that in no place in the Bible have we the assurance that our lives shall be prolonged, in answer to prayer. The sun shines on the just and on the unjust; and sickness and accident

and death also come to the just and to the unjust. It is our duty to save our lives, where we can consistently, for the good of others. It is our duty to be careful of human life; but all of our prayers should take in the thought, whether expressed in words or not, "Nevertheless, not my will, but thine, be done." He who starts out to be a follower of Christ Jesus must not expect that, because he does so, he is to be exempt from the ills of this life; in fact, it does sometimes seem as if Christians were called upon to suffer and bear even *more* than the people of the world. The Ashtabula disaster of years ago seemed to indicate very plainly that God does not propose to save even his *devoted* followers from the effects of a terrible accident. In the case before us it seems to have been rather the acts of man than the acts of God; but when we come to earthquakes, cyclones, cloud-bursts, and the like, we are forced to conclude that God has some very wise and good purpose in permitting these sad things. It may be that we need to be reminded very often of the uncertainty of life, and of the fact that it is futile for us to propose putting off the time of reform until death shall be near. I do believe that it is well for us to know that death may come at any hour, unheralded and without warning. Our whole nation once prayed that the life of a president might be spared. It seemed to us that it *must* be for the best that he should be spared. His life was not spared, however, and I feel certain that none but a poor *mistaken* Christian lost faith in God simply because our president died. Suppose, by way of illustration, we should quarrel with the great Creator because his plans were not in accordance with our poor weak human judgment. If we should decide that this world or this universe is a poor one, and badly managed, how much can we do toward finding a better one? Jesus once asked his poor humble followers if they too were going to be offended, and turn away from him. Peter, by a sort of instinct, such as our brother has mentioned, rushed to the truth of the matter at once when he said, "Lord, to whom shall we go? thou hast the words of eternal life." Now, then, if we shut up or throw away our Bibles, what then? Where shall we find comfort? Is there anything else that will sustain and cheer us in the dying hour? We are told that a mother, at the last crisis, put her children, one by one, on floating fragments—fragments that would buoy them up, probably, but would not sustain her own weight; then with a prayer to God, and with encouraging words to the children that God would take care of them in the flood and in the darkness, she set them adrift. They were never found alive. Did the poor, almost distracted mother make a mistake in commending them to Him who holdeth the winds and the waves in the hollow of his hand, and who heareth even the ravens when they cry? She might have made a mistake in assuring them that they would be spared from death, but surely not in trusting even her little four-year-old girl to the tender mercies of the Father above, when the little one

called back in the darkness. "Mamma, I am not afraid." The cold corpse of her darling was afterward found, and skeptics have tried to make it appear that the poor mother was wrong. But who shall say that God did not take that little one who, with childish lips, said she was not afraid, into his care and keeping, without a pang? We are not told in God's holy word that we shall be spared from death; but we *are* told that

Jesus can make a dying-bed
Feel soft as downy pillows are.

As we go to press, I feel to rejoice that our own State of Ohio has done nobly for the relief of the sufferers; and I am glad to say that a subscription was started in our own little town of Medina, even on the Sabbath day, and that the money subscribed went as speedily to the sick and suffering as our modern methods of swift travel could carry it. Jesus told us, that "in the world ye shall have tribulation;" but he also says, "I have overcome the world."

THE VAN DEUSEN METAL CORNER.

FRAMES AT FIXED DISTANCES; REVERSIBLE FRAMES, ETC.

EDITOR OF GLEANINGS:—It is with pleasure that I answer your inquiries regarding the VanDeusen metal-cornered frame. Eight or nine years ago I read Quinby's "New Bee-Keeping," and became enthusiastic over the merits of the closed-end frame. I gave it a trial, but I never could handle it without killing a good many bees. My bees at that time were blacks and low-grade hybrids, with the two worst traits of such bees fully developed—that of hanging in great bunches on the corners of the frames when lifted from the hive, and of being very free with their stings when pinched a little. With Italians I presume the crushing of bees with such frames is reduced to a minimum, for they do not get in the way as the blacks do. With hooks on all four corners, the Quinby closed-end is certainly an almost perfect reversible frame, if we lay aside the objections mentioned above. Not liking the loose case I reduced the depth of the frames to seven inches and dropped them into an ordinary hive, supporting them on hoop-iron strips nailed along the lower edge of the ends of the hive. Notwithstanding these frames were wedged from the side, the propolis soon made them difficult to handle, and they are certainly as perfect bee-killers as one could possibly invent; for when a frame is pushed down, as described by Mr. Heddon on page 390 of *GLEANINGS*, May 15, 1889, it is impossible to avoid crushing bees on the frame-support at the bottom. I write in present tense, for one of those hives is still in use in my yard; and several times every summer, after reading how easy it is to handle the closed-end frame if one only knows how, I go and try to learn. To be more sure of success, I have had a colony of splendid Italians in the hive for nearly two years; but they get under the end-bars by twos, threes, and half-dozens; and as the frames go into place, one never fails to hear the bones crack. If the Heddon hive is made with a metal rest for the frames, I consider it a waste of time to discuss the question of easy manipulation of frames; it must be a manipulation of hives.

In all my experiments with frames there were two points kept constantly in view. For many reasons I desired a reversible frame; and because my bees were to be moved frequently I had determined that the frame should be fixed firmly in its place in the hive. The closed end frame answered these conditions, but its objectionable features outweighed its good points. At this stage of my investigations you illustrated the VanDeusen metal corner in *GLEANINGS*, and described the hive used by Mr. O. J. Hetherington, of East Saginaw, Michigan. I was favorably impressed with the device; and after experimenting with it a little, I began putting all my new swarms into hives supplied with the Hetherington frame. I am more than pleased with its working. It is more easily handled than any other frame in existence, and it is impossible for the bees to fasten it with propolis because its bearings are all metal, and are mere points. From each corner of the frame, two metal points project $\frac{3}{8}$ of an inch, spreading slightly until they reach a width of an inch and a half, scant, at the widest part. The $\frac{3}{8}$ projection spaces the end of the frame away from the end of the hive, and supports the frame by resting upon a strip of metal nailed to the lower edge of the end of the hive. The spread of the projections (or, rather, shoulders on the projections) spaces the frames from each other and from the sides of the hive. In lifting out a frame or returning it, it is impossible to roll bees between the end-bars and the ends of the hives; and when moving frames closer together the four conical shoulders make it a difficult matter to crush a bee between the combs, as is so often done with suspended frames. I can handle these frames much faster than I can suspended frames; and after hiving a new swarm, the hive can be carried to any part of the apiary, and put down with the assurance that every frame is in its proper place. To move an apiary, it is only necessary to shut the bees in the hives, and they are ready to be loaded on the wagon. I do not see how a better reversible frame could be made; for, top and bottom being alike, it makes no difference which side is up; the hives may even be stood on end for examination; a point of considerable importance when one is in a hurry.

I am not sure but I have one objection to this metal corner; and that is, that it spaces the combs $1\frac{1}{2}$ inches from center to center. As yet it has given me no trouble on that score, but I believe I should like it better if the spacing were only $1\frac{1}{8}$ inches. The wide spacing is an invitation to the bees to store rather more honey in the brood-chamber than I want there; but by shaving off the elongated cells and reversing the frames I have managed the matter very satisfactorily. With a large number of colonies this would be too much labor, and I have about arrived at the conclusion that I want the spacing reduced to $1\frac{1}{8}$ inches.

Any one using a suspended frame can easily change to this without buying new frames, if the ones he has in use are one inch shorter than the inside of the hive. Saw off the projection of the top-bar, nail a metal corner on each corner of the old frame, and a folded piece of sheet iron on the bottom edge of the ends of the hive, and the work is done. The expense is but trifling, and it makes a hive that, in my estimation, is far in advance of any other now in use.

I may as well mention here, that I use a frame $16\frac{1}{2}$ inches long and 7 inches deep, outside measure;

and it might be that, in handling a deeper frame of this kind I should find objections to it that my shallow frame has not developed. Two of my neighbors who have heretofore used the same frame I am now using have this year added one inch to its depth, and I shall have the opportunity of observing its workings.

Z. T. HAWK.

Audubon, Iowa, May 27, 1889

I am very glad indeed to get the above report; in fact, I have long wondered that we didn't hear more from that frame. I think, however, you will not like frames spaced at 1½. I have tried it pretty thoroughly; and unless your combs are absolutely straight, like a board, even when filled with brood and capped over, you will have a great deal of trouble if you undertake to move frames from one hive to another, or even reverse or change ends with any frame. The combs will touch in places, or so nearly touch, that the bees can not get through; cells will be left vacant, brood will be destroyed, and constant labor will be involved in cutting down and building out—labor for the bees. The frame you have, I think will work better with the VanDeusen corners than a deeper or larger one.

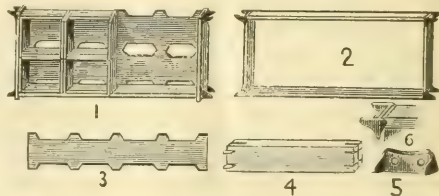
RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

THE HETHERINGTON REVERSIBLE FRAME.

WHANCING to observe that our friend Z. T. Hawk was using the frame mentioned above, I wrote to him asking him to prepare an article for GLEANINGS, setting forth his views and experience with reference to closed-end frames, and the Hetherington reversible frame in particular. He has done so, and the article above covers my own feelings in the matter so perfectly that but little further comment is necessary. While I recognize some of the very decided advantages of the closed-end frame, I have been no less sensible of their defects, both from a theoretical and practical standpoint. The more I have been thinking of the matter, the more I feel just at present that the Hetherington reversible frame comes as near filling the bill as any thing that has ever been gotten out. It not only retains most if not all the advantages of the closed-end frames, but it obviates some of their most serious defects, so it seems to me; and friend Hawk, from a practical standpoint, you will notice, is of the same opinion. For the production of comb or extracted honey, in any case where the colonies are to be moved to any considerable extent, to and from out-apiaries, it seems to me (although I may change my mind very shortly) that something better than the ordinary suspended frame is needed. I have not forgotten the advantages of the hanging frame, such as the lateral movement, spreading of frames in winter, and contracting again in the spring. By turning to Question 117, April 1, page 270, where the problem of wood bearings versus metal rabbits is involved, with reference to the hanging frame, a great

majority of the respondents prefer the wood bearings. Why? For the very reason that the hives can be moved about without special means for holding the frames at fixed distances; but to get this feature it is necessary to incur considerable inconvenience. If the frames are fixed with propolis, they must be removed necessarily with difficulty, to say nothing of an occasional snap, and, of course, disturbance from the bees, and more or less stings. I do not believe that apiarists in general would tolerate the regular closed-end frames, although I do not deny the fact that some of our best and most extensive bee-keepers use and prefer them; but I do think that a frame at fixed distances is a thing we need, providing that we can at the same time secure perfect mobility. Perhaps the principal reason why we dropped the Hetherington reversible frame was because it could not be adapted to the Simplicity body, with its beveled edge. This frame, however, will fit the new Dovetailed hive with but very little alteration. A strip of strap iron or heavy tin, nailed to the bottom inside edge of each end of the hive will form the support for the Hetherington frame. This support will not interfere with hanging frames. To give you a better idea of the reversible frame, I reproduce here an engraving which appeared on page 332 of GLEANINGS for 1884.



THE METAL-CASTING REVERSIBLE FRAME.

1. Metal corners attached to a wide frame, showing how it can be used without any top-bar.
2. Brood frame, with metal corners attached to each corner.
3. Metal corner detached from the frame, showing nail holes.
4. End-bar of wide frame, showing cuts necessary to take in metal corner.
5. Metal corner in place, inserted in a saw cut in the end bar.
6. End-bar of wide frame, showing cuts necessary to take in metal corner.

The figures 2, 6, and 5, will make the idea plain. No. 5 we nail upon the frame, as shown in figure 6. The casting not only spaces the frames the proper distance apart, but keeps them at a proper distance from the ends of the hive. As the place of contact is a mere point, propolis can play no part. I have tried these frames considerably, and know of nothing that reverses any prettier or nicer than these; and when they drop down upon the strap-iron support, there is but very little chance of crushing bees. I do not believe it ordinarily pays to go to the expense of reversing; but if we can get reversing with *fixity* of distances at the same time, well and good. All of the combs in the Hetherington reversible frame are filled out nice and full, and will almost do to ship without wires. We shall not at present offer these frames for sale; but what I want to know is, have any others of our subscribers tested it? If so, let us hear from them. What I want to know particularly is whether I am on the right track for something better.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JUNE 15, 1889.

He that planted the ear, shall he not hear? he that formed the eye, shall he not see?—PSALM 91: 9.

HONEY MARKET.

By glancing at the honey market, for a few numbers back, we observe that the old honey has been nearly cleaned out, and that there is a demand for new honey. After the old stuff has been all moved off, we shall hope for better prices, even with a good honey-flow.

DZIERZON.

The following item, from the *Revue Internationale*, of Nyon, Switzerland, will be of interest to our readers:

Dzierzon, born in 1811, is still living a retired life in Brieg, Silesia, where he has been for several years. The University of Munich has awarded him the diploma of Doctor of Philosophy, as a reward for his numerous scientific works, and for his theory in regard to parthenogenesis.

THE BUSH LIMA BEAN.

MAY be you think I have got over my enthusiasm; but I tell you, I have not. A good many thousands of the Henderson bush lima beans are now above ground; but, like the seed they sprang from, the plants are so diminutive they look like Lilliputian beans. Not so with the Kumerle. It looks exactly like a good, strong, healthy lima bean. It is true, it may climb poles, as friend Henderson has suggested; but if they do undertake to climb poles, our friend Thorburn had better climb a pole too, or else some bushy tree, where he can get himself out of sight.

EXTENSIVE BEE-KEEPERS.

As we have said many times before, our space is crowded; but we always have lots of room—in fact, we make it for bee-keepers of large experience, and those who own colonies by the several hundreds. We are constantly striving to make improvements in various ways in GLEANINGS; and our latest effort is to secure articles from the most extensive bee-keepers in the land, on live topics. We take pleasure in the fact that we have added to our columns such men as A. E. Manum, S. I. Freeborn, and others. Those who are large bee-keepers, and, as a matter of course, successful, can hardly fail to give us some practical hints.

ANSWERS TO QUESTIONS FROM THE A B C CLASS.

It will be noticed elsewhere, that we have started a department for the A B C class. Most of the questions are asked by beginners. Some questions, however, are asked by the veterans, and are answered in this department because they are not only of general interest, but they are of vital interest to beginners. Although our A B C book is very comprehensive, it can not, from the nature of the case,

cover all things under all circumstances. It will be observed, that the question itself is omitted, the query being implied in the answer. We do this, because it saves space, because almost all of the answers imply the question, and hence the specific wording of the question before would be not only useless but unnecessary.

THE ENCYCLOPEDIA BRITANNICA—A CORRECTION.

SINCE our article on page 443 of our last issue was printed, concerning manufactured comb honey, as published in the American Supplement of the *Encyclopedia Britannica*, we learn that the J. M. Stoddard Co., Limited, of Philadelphia, were not the publishers of the Supplement in question, containing the slander on the bee-keeping industry. As Dr. Nysewander, who furnished us the facts, did not give the name of the publishers, we consulted an American edition of the *Britannica*, and found that the publishers were the J. M. Stoddard Co., Limited, Philadelphia. Supposing them to be the only publishers of the American edition, we concluded a little too hastily that they were responsible for the false statement. We here desire to publicly exonerate them from all connection in the matter. We have since learned that the publishers of the Supplement are Messrs. Hubbard Bros., 723 Chestnut St., Philadelphia, Pa., and have written them.

OUT-APIARIES AND MIGRATORY BEE-KEEPING.

We are glad to note the disposition on the part of our correspondents to discuss the matter of out-apiaries in all its bearings. There is more to be developed in this line than we are perhaps aware. Migratory bee-keeping, a kindred department of the industry, will doubtless receive more attention in the future. This fact has been proven over and over again; namely, that often a difference of two or three miles makes a very decided difference in the supply of nectar. H. R. Boardman, of East Townsend, O., says in some of his out-apiaries last summer his bees were almost on the verge of starvation; while two or three miles away, in another apiary, bees were very busy storing surplus. Migratory bee-keeping means moving bees to and catching any flow of honey which may suddenly develop in any locality where there are but few bees. Scale hives, located in several localities, with some one to report immediately any favorable change of the pointer, would keep the apiarist posted. Who can give us some experience in this line? Perhaps H. R. Boardman will favor us with an article on this subject.

CHILLED AND FOUL BROOD; HOW TO DISTINGUISH ONE FROM THE OTHER.

WITHIN the last few days, during the damp cool weather, a great deal of chilled and foul brood has been reported, and we have had a good deal of the former. Quite a number who have written to us in regard to their discovery have come to the conclusion rather hastily that they had the real foul brood, when the reported symptoms showed that they had only chilled brood. While foul brood is getting to be more and more prevalent, we fear, in the country, most of the alleged foul brood is only chilled, and, of course, not infectious. Perhaps we should remark right here, that chilled brood, in a great many points, resembles the virulent form. The former may be recognized by the following: A cold spell of weather comes on; the bees contract the cluster, inside of the outside limits of the brood,

Sometimes one or two frames are left high and dry, so to speak. The heads of the unsealed larvae in these combs will first turn black. The grub itself gradually sinks down; and after a time, unless the bees carry it out, it will turn to a grayish pulpy mass. If still neglected by the bees, it will assume a yellowish color; but, unlike foul brood, there is no ropiness. The characteristic brown color, as well as the glue-pot odor, is also absent. The capings are sunken and are often perforated. We are afraid that there are some who have unwisely concluded that they had foul brood, and have gone to the expense of treating chilled brood, for the virulent type. Some of the alleged specifics, we fancy, such as coffee, sulphuric acid, etc., have had to do with only chilled brood. Of course, this will disappear of itself; but the coffee and sulphuric acid get the credit, and Brown is offended because we have no faith in his remedy.

MARKETING OUR STRAWBERRIES, ETC.

At this date, June 13, strawberries are ripening pretty fairly; but I am pleased to tell you that they go off just as quick as they are ripe, at 15 cents a quart. It is true, berries are sold around us for 10 cents a quart; but I will tell you some of the reasons why we get 15 cents. The picking is all done by the school children, before school in the morning and after school in the afternoon. They are picked, and carefully placed in new pint boxes, made by the Disbrow Manufacturing Co., Rochester, N. Y. We give good heaping measure, and most of the berries are great big ones. Those picked at night are placed on the market-wagon, the wagon being placed in the fruit-house. Well, instead of shutting the building up with doors, both the north and south ends are simply closed with wire netting, so the air has free access. The little boxes of berries are placed 16 in a box, made expressly for them (these baskets are figured in our book, *What to Do*). The wagon starts out before 6 o'clock in the morning. The boys also start out to pick berries about the same time; and by school time the wagon is generally sold out, and comes around and collects the berries just picked; so you see we can tell our customers, "These berries were picked this morning." We usually get the pint baskets back again; but if it is not convenient, we let them go with the berries. Another thing that makes them sell is the extra large size. Why, it is almost like eating peaches to take one in your hand. Some of the farmers in the vicinity of Medina are complaining that they can not make any money by raising grain crops, and so they have started in on tobacco. It takes just as much manure and cultivation to raise tobacco as it does to raise strawberries. One kills, and the other cures. Yes, even Christian people are engaged in the tobacco-traffic. I asked one of the pastors, when told that his people were engaged in raising tobacco, what professing Christians had to say for themselves. He replied, "Their only plea is, 'There is money in it.'" Woe betide the follower of Christ when he gets on such ground as that. "Seek ye first the kingdom of God, and his righteousness, and all these things shall be added unto you."

BAD WEATHER.

LETTERS from all parts of the country mention the effects of the bad stormy weather. Many say their bees are starving; others, that there is no honey coming in, and colonies are liable to starve.

Within the last few days, the weather (June 13th) has so materially changed for the better in our locality that we hope that this discouraging outlook may soon be reversed. In fact, we are already in receipt of reports saying that honey is beginning to come in at a good rate.

SPECIAL NOTICES.

COPPER TEA-KETTLES AND BOILERS.

Since the collapse of the French copper syndicate, and the consequent decline in the price of copper in all its forms, articles manufactured from copper can now be bought at lower prices than for some time. We have accordingly put in a stock of planished copper tea-kettles and wash-boilers, which we can furnish at the following prices:

No. 8, copper tea-kettles,	\$1.50 each;	\$12.50 for 10.
No. 9, " "	1.75 each;	13.50 " 10.
No. 8, " " boilers,	3.50 each;	30.00 " 10.
No. 9, " " "	4.00 each;	33.00 " 10.

These are all tinned inside, and planished bright outside. The boilers include a tin cover. You may have the tea-kettle nickel-plated outside for 30 cts. each more. If carefully handled, copper utensils should last a lifetime, as they will not rust out like tin, nor chip off like agate or granite ware. They are also chemically safe to use.

DECLINE IN PRICE OF WIRE NAILS.

The manufacturers of wire nails having adopted a new list of prices, making important changes, we also change our prices accordingly. You will notice, by comparing our new table below with the old one published in our catalogue, that, on all sizes there is a decline in prices, and this is especially noticeable in the very small sizes. You notice, also, we introduce a new column, giving price of 25-lb. boxes, as we now keep in stock both 25 and 50 lb. boxes, which go at the same rate. Taking the prices right through, there is a marked decline in price.

PRICE LIST OF FINE FLAT-HEAD WIRE NAILS.

The $\frac{1}{8}$, $\frac{3}{8}$, and $\frac{1}{2}$ inch are also put up in $\frac{1}{2}$ -lb. packages, at 15, 12, and 10c per package.

Length of Nails.	No. of Nails per lb.	Size of Wire.	Wgt of 5-cent Pkgs.	Price.				
				1 lb.	10 lbs.	25 lbs.	50 lbs.	100 lbs.
$\frac{1}{8}$ in.	17,777	No. 21	1 oz.	25 ct.	\$2.40	\$6.00	\$12.00	\$22.00
$\frac{3}{8}$ "	10,000	" 20	2 "	20	1.80	4.00	1.20	1.20
$\frac{1}{2}$ "	7,500	" 20	2 "	18	1.60	3.40	12.80	12.80
$\frac{3}{4}$ "	4,269	" 19	4 "	15	1.30	2.75	10.40	10.40
$\frac{7}{8}$ "	2,750	" 18	4 "	13	1.05	2.15	8.00	8.00
1 "	2,350	" 18	4 "	12	1.00	2.00	7.10	7.10
$1\frac{1}{8}$ "	2,000	" 18	4 "	11	.90	1.85	6.80	6.80
$1\frac{1}{4}$ "	1,200	" 17	8 "	10	.80	1.65	5.90	5.90
$1\frac{3}{8}$ "	760	" 16	8 "	9	.70	1.50	5.30	5.30
$1\frac{1}{2}$ "	500	" 15	8 "	9	.70	1.50	5.30	5.30
2 "	350	" 14	8 "	8	.70	1.40	5.00	5.00
$2\frac{1}{4}$ "	238	" 13	8 "	8	.60	1.30	4.70	4.70
$2\frac{3}{4}$ "	164	" 12	8 "	8	.60	1.25	4.40	4.40

Five lbs. will be charged at the 10-lb. rate; 50 lbs. at the 25-lb. rate. By mail, 18 cts. per lb. extra for postage and packing.

KIND WORDS FROM OUR CUSTOMERS.

Your Dovetailed hive can not be surpassed for workmanship. Freight charges were very moderate, being only \$1.22 for 295 pounds of stuff. Sassafras, Md., June 2, 1889. R. J. TOWNSEND.

THAT WHEELBARROW.

The goods you sent me came in due time, and I wish to say I am very much pleased with that wheelbarrow. It is so light and yet so strong, and runs so easy, it is ahead of anything in that line I ever saw. The other things are all right. Greene, Ia., June 2, 1889. GREEN R. SHRER.

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CONVENTION NOTICE.

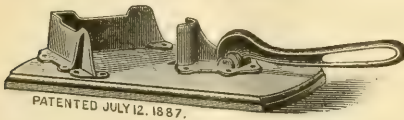
The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary.

Brantford, Ont., Can.

R. F. HOLTERRANN, Sec'y.

SECTION PRESS.

PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to

WAKEMAN & CROCKER, Lockport, N. Y.

In responding to this advertisement mention GLEANINGS.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION. See advertisement in another column.

100 TONS OF COMB HONEY

Will undoubtedly be put on the market this season in our

FOLDING PAPER BOXES.

Send for catalogue, 20 pages, free. Sample box, 5c. Our prices defy competition.

920db A. C. CRAWFORD, S. WYOMOUTH, MASS.

In responding to this advertisement mention GLEANINGS.

B. J. MILLER & CO., NAPPANEE, IND., BEE - HIVES AND ITALIAN QUEENS.

4½x1½ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 11fdb

In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODALL & WOODWARD MFG. CO.,
31fdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

QUEENS! QUEENS!

* ELLISON'S * ALL ITALIANS * JUNE AND AFTER.

1 untested queen..... 75
3 " "..... \$2.00
1 tested "..... 1.50
3 " "..... 4.25
2 and 3 frame nuclei. Safe arrival guaranteed. Wholesale rates on application.

W. J. ELLISON,
Starburg, Sumter Co., S. C.

In responding to this advertisement mention GLEANINGS.

Bees Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

In responding to this advertisement mention GLEANINGS.

I AM AWAITING YOUR ORDER FOR 3-FRAME NUCLEI.

Price, with untested queen, \$3.00. Best tested queen, \$4.00; 2 frame nuclei, 50 cts. less. Combs straight and true; all worker comb, and bees finest of Italians. One untested queen, \$1.00; 6 for \$5.00. Best tested, \$2.50 each.

JNO. A. THORNTON,

Exp. Office, Ursa, Ill. Lima, Ill.
Mention GLEANINGS. 12fdb

DO YOU WANT

One of the finest GOLDEN ITALIAN QUEENS you ever saw? Then send to us and get one reared by our new, natural, and practical method.

Warranted queens, each, \$1.00; Select warranted, each, \$1.25; Tested, \$1.50.

We have had thirty years' experience in rearing queens. 25,000 of our old customers will tell you that the purity, beauty, and quality of our queens can not be excelled.

12fdb HENRY ALLEY, Wenham, Mass.

In responding to this advertisement mention GLEANINGS.

NOT TOO LATE

YET TO ORDER SUPPLIES

From me, as I ship very promptly. The class of goods I handle is very fine.

—TRY ME ONCE—

Catalogue free. JOHN ASPINWALL,
12fdb Barrytown, Dutchess Co., N. Y.

In responding to this advertisement mention GLEANINGS.

LOOK HERE! Cheap Enough At Last.

Full colonies of pure Italian bees in A. I. Root's Simplicity hive, only \$4.00 each. Now ready to ship. Frames, wired combs drawn from fdn., every thing first-class. Write for prices of Poland-China swine, White and Brown Leghorn chickens, and Mallard ducks. Eggs for hatching. Also white and black ferrets. Address N. A. KNAPP,
11fdb ROCHESTER, LORAIN CO., OHIO.

In responding to this advertisement mention GLEANINGS.

FOR SALE.

Sections in bushel boxes, No. 1, \$3.00 per M. Japanese buckwheat; a complete S. or L. hive for comb honey, 75c; shipping-crates, and all kinds of supplies cheap. Price list free.

9fdb W. D. SOPER, Jackson, Mich.

QUEENS! QUEENS!

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlotteville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

KEYSTONE APIARY.

Imported and Alley Queen-Mothers

Tested, June..... \$3.00; July to October..... \$2.50
Fertile, " 1.50; " 1.00
Virgin, " to October50c
Alley drone and queen traps at regular prices.
Send for circular. W. J. ROW,

Mention Gleanings. 10-15db Greensburg, Pa.

Price of Sections Reduced.

I will sell No. 1 white basswood V-groove sections at \$3.00 per M. No. 2, \$2.00 per M. Price list free.

J. M. KENZIE,

10-14db Rochester, Oakland Co., Mich.

In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, \$1.25 each; untested, June to Oct., 75 cts.; 3 for \$2.00. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tfdb JNO. NEBEL & SON, High Hill, Mo.

Gift! Gift! Gift!

To every purchaser of one tested yellow Italian queen, in June and after, for \$1.50, I will give one L frame nucleus, 50 cts., for each added frame of brood and bees. Tested queens, \$1.25; untested, \$1.00. Send for price list.

MRS. OLIVER COLE,

Sherburne, Chen. Co., N. Y.
Chenango Valley Apiary. 10tfdb

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.

FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars. DR. A. B. MASON,

9-14db Auburndale, Ohio.

In responding to this advertisement mention GLEANINGS.

1889. 19th Year in Queen-Rearing. 1889.

ITALIAN QUEEN-BEES.

Tested queen, in April, May, and June..... \$1.50
Untested "80

Sent by mail and safe arrival guaranteed. Also nuclei and full colonies. Eggs of Pekin ducks—White and Brown Leghorns, and White-crested Black Polish chicks, \$1.50 per dozen. Address

W. P. HENDERSON,

5tfdb Murfreesboro, Tenn.

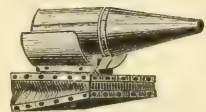
In responding to this advertisement mention GLEANINGS.



Bingham & Hetherington's Honey-knife. Patented 1879.

Bingham Smokers and Bingham & Hetherington Honey-knives are staple tools, and have been used ten years without complaint. The smokers last, work easily, throw a stream of smoke ten feet, and save time, stings, and money. Send card for descriptive circular of the cheapest and best tools in use—free.

THEY LAST.



Patented 1879.

ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

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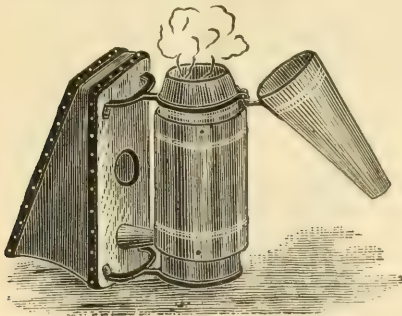
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Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

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Black and hybrid queens for sale, 30 and 50 cts. respectively. J. A. KIME, Fairfield, Pa.

FOR SALE.—Two black and 10 hybrid queens at 25 and 35 cts. A. W. SPRACKLEN, Cowden, Shelby Co., Ill.

I have a few hybrid queens which I will mail for 35 cents each. S. P. YODER, East Lewistown, O.

Now ready to mail, Italian-hybrid queens at 30c each. N. A. KNAPP, Rochester, Lorain Co., O. 13 14d

Black and hybrid queens for sale at 20 and 25 cts., respectively, by JAS. MCNEILL, Hudson, N. Y.

Hybrid queens for sale, of this season's raising, and prolific, 35c each, or 3 for \$1. Safe arrival guaranteed. J. P. POOLE, Russellville, Ark.

Having purchased a large apiary of choice black and hybrid bees, I will sell the queens at 20 cts. and 30 cts. respectively. OLIVER FOSTER, 13ftdb Mt. Vernon, Linn Co., Iowa.

FOR SALE.—Three mismatched Italian queens, 35c each. Lot for \$1.00, CHAS. MCCLAVE, New London, Ohio.



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No. 13.

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OUT-APIARIES, NO. X.

VENTILATION FOR BEES WHEN HAULING.

ONE day I was hauling, among others, a very strong colony of bees from home to the Wilson apiary. The day was very hot, and I did not get started till pretty late, and was delayed by some business in the village as I passed through. When the entrance to the hive was opened, after reaching the Wilson apiary, the bees of this strong colony rushed forth in a body, not taking wing—they couldn't take wing—but spreading out on the ground until they covered a distance of perhaps three feet from the hive. I should think about a fourth of the colony were on the ground—perhaps not so many. The rest of the bees didn't crawl out—dead bees don't. Those that did come out soon died. The whole colony was a steaming, wet mass, and the combs were soft and broken down. Fifty colonies lost in wintering were not mourned so much as that one colony. It seemed a case of deliberate murder.

Bees don't need such an immense amount of ventilation; but what they do need, be very sure you give them, or they will smother to death. I have, in a few cases, hauled bees in the middle of a hot day, in the middle of summer, in which case I gave them the usual ventilation at the entrance and a covering of wire cloth over the entire top, a space of three or four inches being between the tops of the frames and the wire cloth. That was probably more ventilation than they needed, but the excess of ventilation did no hurt. For the usual hauling, spring and fall, I give no other ventilation than the ordinary entrance covered with wire cloth. Until recently the entrances to my hives were $15\frac{1}{2}$ x $\frac{3}{4}$, making a space of nearly 6 square inches; but now they are $15\frac{1}{2}$ x $\frac{1}{2}$, making about 8 square inches,

The 6 square inches seemed to answer very well, but 8 are probably better. Perhaps smaller hives would need more ventilation. In any case, be sure that you give ventilation enough. Don't start out with a full load of bees, giving only 6 inches ventilation, till you have tried one or two, and know that 6 inches is enough for you. Possibly 12 square inches may be none too large space for ventilating your hives. At any rate, too much ventilation will do no harm, and the only reason I have so little is the simple matter of convenience. I formerly attached to the front of each entrance a wire-cloth portico, which answered the purpose excellently, but I now have a simpler and easier way. Take a stick about as long as the width of the hive, an inch wide, and $\frac{3}{4}$ thick. Take a piece of wire cloth about two inches wide, and as long as your stick, and double it lengthwise. Lay the wire cloth on the stick, and fasten it on with three or four double-pointed tacks, running them across the grain



WIRE-CLOTH STOPPER FOR ENTRANCE, SHOWING THE SIDE THAT GOES NEXT THE HIVE.

so as not to split the stick, letting the doubled edge project over the edge of the stick $\frac{3}{4}$ or $\frac{1}{2}$ inch, whatever the size of the entrance. A single thickness of wire cloth would answer as well or better than double, but for its raveling out at the edge. A $1\frac{1}{2}$ -inch wire nail driven into each end of the stick holds it fast on the hive. The nail is driven in only a little more than half its length, so it can be easily drawn out with a claw hammer. After the nail is drawn in a sufficient depth, it is bent over so there is no danger of the stick slipping back on the nail.

I need not say that such a stopper is not suitable for all hives. For hives with loose bottom-boards, there might be special bottom-boards made, to be used only in carrying, in which should be a liberal allowance of wire cloth.

C. C. MILLER.

Marango, Ill.

Friend M., a good many of us have had experience with bees so nearly smothered that they crawled out of the hive and off through the dirt, in every direction. Now, if they are allowed to go off through the dirt it is a dead loss, for they are dead bees. But there is a way of saving them. I have given it with full particulars in our little book, "Mr. Merrybanks and his Neighbor." I have saved bees so nearly suffocated they were wet and daubed with honey, a great many times, in the same way. Our boys once put up some nuclei during very hot weather. The combs were heavy with honey, and the bees were gorged. Bees from the apiary soon began hanging around the wire cloth, and making a bother; and to keep them away, somebody set them inside of a chaff hive and laid a cover on, thinking that the ventilating holes in the cover would give them air enough. Not so. When I found them they were almost too hot to touch, and dripping with honey, having that black sticky appearance. I took a nucleus under each arm and rushed to the apiary, and found two queenless colonies in chaff hives. I raised the cover and set a nucleus inside of each one. As soon as I pried off the wire cloth, the bees boiled out all over the sides of the hives, too wet to take wing; but before they could get outside of the chaff hive the cover was put on. Of course, the brood-combs to the chaff hives were uncovered. Now the sticky bees could not get to the open air without crawling through a good populous colony, and I expected that this good populous colony would lick them clean and reconcile them to staying indoors before they had a chance to find an entrance. It turned out exactly as I expected. Every bee, including the queen, had his face washed and hair combed, and looked quite respectable by next morning; but they had a black, shiny look that they never got entirely rid of. None crawled out of the entrance to go off and die, that I could discover, at all. After you have got a good quantity of bees, of course it will take a good strong healthy colony to slick them all up. During hot weather we place a sheet of wire cloth over both top and bottom, and have the bottom so arranged that it can not be set on the floor so as to cut off ventilation. With plenty of air, the hottest weather does no harm.

WHAT CAUSES SWARMING?

FRIEND DOOLITTLE TAKES SOME EXCEPTIONS TO DR. MILLER'S INTERPRETATION OF FRIEND HASTY.

IT was with no little interest that I read the article by Dr. Miller, found on pages 441 and 445 of GLEANINGS, in which he tries to interpret what friend Hasty says about what causes swarming, in a most singular way, which interpretation is fallen in with by the editor, to a certain extent at least. Apropos of this I find an article in

the June *Guide*, written by the editor, in which he says, "If from any cause the food secreted by the nurse-bees is more than is required to feed the larvæ and queen, it is stored in abundance in certain cells which become queen-cells, and hatch queens. The capping of the queen-cells, or closing the doors to these storehouses for the food secreted by the nurse-bees, causes a commotion in the hive which results in swarming." Dr. Miller confesses that he "had never thought of just that reason" before, and for this reason he is excusable for being "taken in" so easily. Let us see what there is against accepting such a theory as that interpretation of Bro. Hasty's words by the doctor, and that brought out by friend Hill, in the *Guide*. In the first place, "these storehouses" (queen-cups) are built weeks before any food is placed in them, and long before the hive is filled with brood, and also when the unsealed brood largely predominates over that which is sealed, this showing that preparation for swarming is commenced long before the nurse-bees think of having more chyme in their stomachs than they have use for; showing, also, that preparations are being made to "multiply and replenish the earth" nearly as soon as the assurance of something for the sustenance of a new colony is warranted by the blooming of the first flowers. Now let us watch these embryo queen-cells and see what becomes of them. When the colony gets a little stronger, and are yet spreading their brood far more rapidly than at any other time in the season, so there is no cramping of the unsealed brood as yet, for the same has not yet reached the outside of the brood-nest, we find the queen placing eggs in these "storehouses," yet so far there has not been a particle of food stored in them, nor will there be till these eggs are about to hatch into larvæ. At this time the bees begin to feed these larvæ, destined to become queens, the same as they do those in the worker-cells, gradually increasing this food, till at the end of 48 hours they do assume the appearance of being storehouses; yet in this, no one, it seems to me, can see any thing but a plan to perfect the queen larva according to the laws which govern the bees, if they will look at it in a reasonable light.

Again, according to the old adage that "corn will tassel out at about such an age, even if the stalks are not six inches high," we see weak colonies of bees making preparations, and swarming with these "storehouses" well filled with royal jelly, when the hive is scarcely three-fourths full of brood, half of which is in the unsealed state. I have so repeatedly had these weaker colonies of spring swarm, that I long ago gave up the idea which I used to entertain, that a part of my colonies were so weak that they would not swarm.

Once more: We have had a very peculiar season here in Central New York this year, in which something has happened which I never knew to happen before to so great an extent as it has done this year. Prior to May 20th we had the most splendid spring for bees which I ever saw, and brood-rearing went on at a lively pace, till, at the date above referred to, all of the stronger colonies had their hives from two-thirds to three-fourths full of brood. With the 20th of May came a rainstorm which kept the bees in their hives for nearly a week, at the end of which it became so cold that ice formed in places a quarter of an inch thick. The cold kept on to a greater or less extent, together with rain, rain,

nearly all of the while (only now and then a pleasant day appearing), till June 12. At this time there was little in the hives save eggs, some nearly mature brood, and a hive pretty well filled with young bees which had hatched from brood which was in the cells on May 25, for brood-rearing was partially kept up for about a week after it began to rain. With June 12th came warm weather with sunshine; and as the rainy weather had brought on the white clover to an unusual extent, all colonies were as "busy as bees" in gathering the nectar which now began to be secreted by the clover, while the brood in the egg and larval form exceeds at this writing (June 18) any thing I ever saw before. Now, if our friends Miller, Hill, and Root were correct, that the accumulation of larval food was what caused swarming, the bees should not think of swarming now (but should have done so about May 28, when there were few or no larvæ to feed); for now there are apparently two larvæ to "one food," yet some of the strongest colonies have eggs in the queen-cells, preparatory to the issuing of swarms in the near future.

While the outlook before us is not good for honey, inasmuch as the brood which should have been in the hive, but was not, between May 20th and June 10th would have been the bees to gather our honey from basswood, still this poor outlook for honey has given a chance to prove the fallacy of this theory, that a surplus of chyme is the prime cause of bees swarming. How much easier for Dr. Miller to accept friend Hasty's words on page 460 ("how can young people be prevented from trying to set up a new domicile?") as applicable to the cause of swarming, rather than try to make out that there is some other cause for it than that implanted in the bees by the Creator of all things! Only as man interferes with the normal condition of the colony to so great an extent that their plans are all frustrated, can swarming be kept under our control; and, as I said on page 460, I believe that such frustration is against the best interests of the apiarist who is working for comb honey. Friend Cook thinks that I am too positive (GLEANINGS for June 1st, page 446) in answering query 125. I would ask friend Cook if we who believe in the Master's teachings have not a right to trust him to a positive extent, when he has said, "Shall not the Judge of all the earth do right?" If I can not be positive here, I have no assurance that there is anything positive in this world.

G. M. DOOLITTLE.

Borodino, N. Y., June 18, 1889.

Now, old friend, my observations do not quite agree with yours, as given in the above. I have seen black bees a great many times start queen-cells about swarming time. After the queen-cell was well along, an egg would be found in it, and then the milky food. Perhaps I may say I have never seen very much natural swarming with the Italians; but I have a great many times found the first indication of a queen-cell (that is, the first that my eye caught hold of) was an accumulation of milky food around a small larva; and when Adair, years ago, suggested that the bees, at least sometimes, put this milky food around a certain small larva, just because they had no other place to store it, I began from that time forward watching for instances to corroborate his theory, and I have found a great many of them. I think I could take you out into our

apiary now, and find just such cells; and in 24 or 48 hours more a queen-cell would be built around it. Another thing, our weak colonies here in Medina do not swarm. Our corn does tassel out when it is about so old, as you say; but we have never had the swarming mania with us to such an extent that colonies that only half filled their hives sent out swarms. We have often read of it, I know, but it does not occur here in our locality. In regard to the peculiar state of affairs during the past few weeks, it is just as I should have expected. The bees could not get out of the hive and gather honey and pollen, therefore they did not have enough milky food to feed the larvæ, to say nothing of piling up some of it to start queen-cells. Most truly does the Judge of all the earth do right; but one of the most righteous acts of his, as it seems to me, was leaving this universe for man to improve, and supplement nature. Instead of letting the calves have all the milk, we by artificial means take the milk from the cows ourselves; and in a like manner we take the other good things he has placed within our reach. Besides, we improve the cows, and improve the strawberries, and make Nature do a thousand other wonderful things she would never have thought of doing without our help. The above are simply A. I. Root's views. He may be wrong and you may be right; but, more likely still, the truth may be somewhere between us.

MOVING BEES SHORT DISTANCES.

HOW A CALIFORNIA APIARIST MOVED 75 COLONIES $\frac{1}{4}$ OF A MILE SUCCESSFULLY.

LAST January I bought 75 stands of bees, and rented a location where they were for three years, with the privilege of moving my other apiary on the same ground; but I preferred to locate my bees further up the cañon, a quarter of a mile to the north. The first week in January I moved my apiary of 90 colonies to said cañon, a distance of 8 miles. Now, my 75 stands stood where they were when I bought them; and to move them two feet a day for a distance of a quarter of a mile, through a winding narrow road up the cañon was more than I cared to do; so I went to work and fixed every thing ready a day or so beforehand; then about sundown I shut them up in their hives and commenced to move my bees. I moved them all that night to where I wanted them. After I got through moving the bees I set to work to make the old location look as strange as possible by clearing every thing away that was movable. About 8 o'clock next morning bees were flying thick about the old location. I kept watching them, and soon found they were taking possession of an empty hive about 50 yards away. I secured the empty hive and carried it into the honey-house; but not before I had been severely stung by the bees; then they tried to get into the honey-house; but they had no show but to go back to their hives in the new location, which they did, but not before showing meanness, for they got on the war-path. They kept my wife in the house with doors closed, and I was kept in the honey-house watching them and the chickens, but it didn't last long, for the chickens gave them the right of way, and hid themselves

in the brush; then when the bees found that there was no place for them but to go back to their hives, and nobody or nothing to pick on, they went back; and before noon the moved bees were working, bringing in pollen and honey as well as they were the day before, and I haven't been able to see any difference in them since, and I don't think there was a pint of bees lost in all. Had I left a box, or something for them to cluster in, I know the result would have been different.

May 1, 1888, I moved 9 stands of bees about 20 rods. I moved them in the night time. The next morning a great many of them came back, loaded with honey and pollen. They began to get cross, and I gave them a large box to cluster in, and that made them peaceable; before night the box was well filled with bees. Fully half of the nine stands had returned. That night I carried them back, but they would not stay; and after carrying them home three or four times I got tired. The moved stands were so weakened by the loss of bees that they didn't recover to be of any use to gather honey for three weeks. Now, had I not given them that box, all would have been well in a few hours.

Bees always know the way back to the place they start out from in the morning, just as well as they know the way back to a certain tree or plants in bloom and yielding honey. But they are not going to leave their old location and stick to the new, if you give them any show, some colonies excepted.

San Bernardino, Cal., Feb. 2, 1889. R. POWELL.

I am greatly interested in the experiment you mention, for it certainly was an experiment, and one on quite a large scale. I was well aware that the bees could be made to find their hives where they had been moved for only a few rods; but I did not suppose it possible that the bees of a whole apiary could be made to go a quarter of a mile. The point you mention, where you state that they *know* where their home is, as well as they know where a tree is that yields honey, is very ingenious, and I am not sure but you are right about it. Suppose, however, your neighbor had hives of bees nearer to you than the new location a quarter of a mile distant. In such a case the bees would probably go into your neighbors' hives, or into any neighboring hives, may be into trees, or cavities in the rocks, if such happen to be near, so the plan is somewhat risky. In my experiments of years ago, in giving bees a flight in a greenhouse, I experimented quite a little in moving the hive to different parts of the room. The bees were working on a tray of meal. I moved the hive away and then watched to see their surprise when they did not find it. After flying about, wearied and perplexed, a while, they would go back again to the meal, and sometimes gather and pad a little more. Then they would start again, and go like a shot to where the hive had always stood; but when baffled and discouraged again, they would go to the meal. Finally one bee, in circling about, came near enough to the old familiar home to get sight of it. He instantly dropped at the entrance, and with his wings raised a loud call. In a little time his comrades joined him, and then what a rejoicing there was! After that, none of them had any trouble, or trouble of only short duration. The point you make

is, that, instead of giving them a box or some combs to cluster on, we should give them nothing of the kind at all. Well, in such cases I have known them to cluster on a bush, and hang until they died.

THE ORIGIN OF THE SWARMING IMPULSE.

FRIEND HASTY GIVES US SOME FURTHER SUGGESTIONS IN REGARD TO THE ABOVE.

AS to the matter on page 445, friend Root, I think you have chastised brother Miller enough for this time, and I won't get after him any more. In fact, it is hardly in order for the schoolmaster to whip the offender awhile himself, and then say to the other boy, "Billy, now you come and pound him for a spell."

Friend Miller has the idea correctly, except that he has limited it a little. I wish it to include the queen as well as the workers. Wait a moment before crying "Nonsense!" at that. The queen is indeed lighter, smaller, and laying less rapidly at the time of swarming than before. She does not like to extrude eggs and throw them away; and the check of egg-production, although it causes the ovaries to decrease in size, causes at the same time the blood to assume a peculiarly enriched character. She, as well as the workers, is "loaded up," as you express it, but, carrying the load in a different place from usual, she feels engorged and restless. Also, I wish it to include not merely the larval food in process of secretion by the workers, but also the elements in the fluids of the bee that supply material for larval food.

The experiment of returning a swarm after taking out the sealed brood, and returning unsealed in the place of it, is interesting, but conclusive in one direction only. If the swarm comes out again it can still be said, "This expedient would have prevented the swarming impulse from getting started, but is not sufficient to eradicate it after it is fully inflamed. You are able to prevent your daughter from wishing to run away with a young scamp, if you attend to the matter in time; but after she has fully resolved to do so, you may be unable." Let us keep a general lookout in all directions, to see if we can ever detect the swarming impulse getting started among bees who are fully employed, or a little overworked, at brood-rearing. Experiments in the other direction may be worth trying. Many report apiaries that give only three or five or ten per cent of swarms. Let two or three of the steadiest colonies in such be selected, and take away the frames of eggs before larval food is put in them to any extent. Give them sealed brood, or newly emerged bees enough to fully compensate the loss they sustain, and see what the result will be. If other things are favorable to swarming, I feel pretty sure they will swarm very soon. Unfortunately, it is here possible to claim that dissatisfaction and annoyance caused the swarming, and not the "loaded-up" condition of the bees.

Perhaps the theory also explains why bees so generally swarm when the first batch of queen-cells is capped. Royal jelly is supposed to be nearly identical with the white food put in the worker cells just about the time the eggs hatch. When there are few eggs hatching, the workers avoid engorgement by crowding great masses of this food

into the queen-cells. When this resource is cut off by the sealing of the cells, the crisis occurs, and out comes the swarm. There is usually a younger batch of cells in the hive; but I think that, in the building of queen cells, bees divide up into *clans*, each cell or group of cells being in charge of a separate clan, which "holds the fort" steadily, and does not let others enter.

E. E. HASTY.

Richards, Lucas Co., O., June 7, 1889.

Friend H., your concluding words just now remind me of a theory put forth by our old friend D. L. Adair, perhaps 20 or 25 years ago, in the *A. B. J.* It was this: That when the interior of the hive got into the condition you have described, so that the nurse-bees were full of milky food for young larvae, without any place to put it, then, as they could not do any better, they agree to stow it away somewhere until needed. One starts it by placing his around a worker larva, giving this worker a great deal more than he needs; then some other bee takes the hint and deposits his superfluous larval food in the same place. To make it stay in the cell, an enlargement is made, and this forms a rudimentary queen-cell, and the superabundance of food causes this worker larva to become a queen. Adair suggested that the fruit-buds on trees were formed in a similar way; and it is well known that any thing that checks the growth of the tree tends to the development of fruit-bearing buds. I do not know but Dr. Miller will call both of us "visionary fanatics" when he comes to read the above. A good many of us laughed at friend Adair, years ago, when he started the idea; but I confess that it looks much more reasonable now, after having *lived* and *learned* all these years, than it did then.

RAMBLE NO. 18.

HE DISCOURSES ON THE POSSIBILITIES OF MAKING A FIVE-CENT PACKAGE FOR HONEY.

THE Rambler is always delighted to visit an ingenious bee-keeper. There are so many new things, or new ways of performing old things, that all the faculties are kept on the alert to learn the new things. Oh, no! there is nothing dull about a *live* Yankee.

In our Ramble to the apiary of Mr. John Henderson we found a Yankee and many new ideas. This ramble would be of undue length, to mention all to be seen; but at this time, when our friends are thinking of marketing their honey, it will be well, perhaps, to confine ourselves to what Mr. H. has done in the line of five-cent honey-packages.

Long before there was any thing written about penny packages for honey, Mr. H. was experimenting. His idea was to get a package for candied honey that could be eaten from the hand cleanly like an apple, and to be sold for five cents. Honey on a stick might do for Canadians; but according to Mr. H., no true Yankee would ever be seen going around with such a daubing arrangement so long as wood and metal could be tortured into a mechanical shape to prevent it. So our friend set himself to work to make the package that would sell in every candy-store, and surfeit every boy and girl in the land with honey.

His thoughts first turned to a wooden box as the

cheapest material. The delivery of honey from the box was to be automatic. To accomplish this, instead of turning out the whole interior of the box,

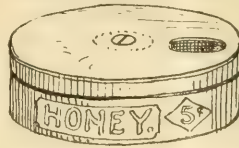


FIG. 1. HENDERSON'S HONEY-TIN.

a center was left, to which the cover was secured by a screw. The cover was also provided with an orifice near the edge, and a scraper, which projected to the bottom of the box. Now fill the box up with candied honey. Screw on the cover; give it a turn in the right direction, and the honey comes boiling up through the orifice, to be eaten off by the purchaser—see Fig. 1.

Our friend was not able to make costly machinery for the manufacture of these boxes on a large scale, and he next turned his attention to a unique device which he called his "canteen honey-package." This package was suggested by the soldiers' song, "And we drank from the same canteen." Our friend's honey-canteen was about the size of an ordinary blacking-box, having a bright ribbon attached by which to carry it, and with an orifice in one edge for the exit of honey. In Fig. 2 the dotted line shows a strip of thin flexible tin, fitted inside the canteen, and attached at one end to the canteen, and at the other end to a wire which projected in the form of a crank. Turn the crank, the strip of tin is wound up, and the honey is forced out of the orifice, to be eaten.



FIG. 2. HENDERSON'S HONEY-CANTEEN.

The next package, shown in Fig. 3, Mr. H. spent much time upon, and thought he had found just the thing; and the Rambler thinks this package, in mechanical operation, can not be much improved for this special purpose.



FIG. 3. HENDERSON'S HONEY-TUBE.

Mr. H. observed some artistic members of his family at work upon an oil painting. The bright colors were placed upon the palette by being squeezed from what appears to be a tin tube. Mr. H. scratched his head and scratched out this idea: If he could get those tubes of the right size they would fill the bill for his five-cent package. After much correspondence he found that a greater proportion of these tubes were made in France, from drawn tin. The tin, by proper machinery, was drawn down very thin. A firm in New York was found that could make these tubes and a few were ordered; but instead of having the little lead screw cap, seen on the paint-tubes, the honey-tubes were left open full size, about an inch in diameter, with a heavy supporting rim around the edge. The lower end was folded like the ordinary tube. It was

then filled with candied honey, a bright label put on, and a piece of tinfoil put over the top, and it was ready for market. To partake of the sweetness within, take off the cap, squeeze the bottom slightly, and the honey is forced out in small or large mouthfuls, according as you squeeze. The Rambler was so pleased with them that he has one now for a keepsake, and as a curiosity to look at, for that is all we can do with it at present; for, being made of seemingly pure tin, the tubes alone would cost nearly five cents each in large quantities. Mr. H. being disappointed in the cost of the tin tube, then experimented with a paper tube; but it looked so poor by the side of tin that our friend gave up until he can find some better substitute, or manufacturers who can give better terms on manufacture. Mr. H. reckons that a two-ounce package should not cost over 1½ cents, or, better, one cent.

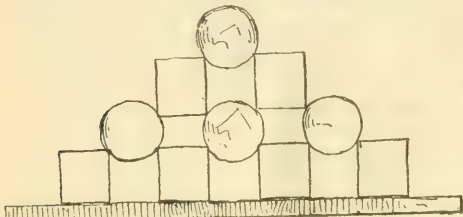


FIG. 4. THE HARMER AND RAMBLER FIVE-CENT PACKAGE, PILED UP.

For the present it seems there is nothing left in the five-cent line but the neat comb honey package of Bro. Harmer, and the Rambler's round section. The round section is easily made, but the Harmer is easier to pack and handle. We hope success for it the coming season; but the Rambler has not the patience to make them.

We have thus presented to your readers our discoveries and the obstacles in the way of the five-cent package. That some one may further develop the idea is the wish of Mr. H. and the RAMBLER.

I am very glad to see you studying on this matter of a cheap package for honey in small quantities. It seems to me, however, that none of the things you mention can possibly be afforded for a 5-cent package. The two first might possibly be made large enough to be worth 10 cts., or perhaps even 25. No. 3, it seems to me, might do very well for a dime. There has been on our table for perhaps two years a little tin box with a wooden cover. It is called "Howe's sample mailing-case," patented Sept. 9, 1879, and is intended for sending sugar and other similar articles by mail. It is simply a shallow tin box, not unlike a blacking-box, but much smaller, and deeper. At the center of the bottom of the box a hole is made. Through this is soldered a common screw, of such a length as to reach exactly as high as the sides of the box. Now, a wooden cover is held in its place by being turned on to this central screw. It may be screwed up so tight that the edges of the tin cut into the wood as it goes around, so as to make it tight enough not only for candied honey, but I should think it would be perfectly safe for liquid honey. The box is manufactured by Dailey Brothers, Detroit, Mich. I do not know the price, but they could, without doubt, be furnished for a cent apiece, in quantities, and large enough to hold not on-

ly 2 ounces, but perhaps even 4, of honey. The box is remarkably strong. The wooden cover projects a little so as to protect the edges of the tin, in such a way that even the worst treatment it may receive in the mailbags could scarcely do it any injury. I have long thought that it was perhaps the cheapest and most substantial package that we could get hold of. We will at once make investigations, and see how low they can be furnished.

QUEEN-CELLS ABOVE PERFORATED HONEY-BOARDS.

ALSO SOMETHING IN REGARD TO FRIEND DOOLITTLE'S NEW BOOK.

ANY one would suppose, Mr. Editor, by your foot-notes at the end of J. D. Fooshe's article, page 490, that you must have read my new book on queen-rearing rather carelessly, for in it I tell that queen cells will be completed when placed over a populous colony at any time of year when the bees of any colony are sufficient to enter such upper story, as to their numbers, where there is a queen-excluder between the upper and lower stories. You seem to think that the swarming fever has something to do with the matter; but such is not the case, as I have proven for years, and especially so during the past three or four weeks of scarcity of honey, during which bees have been on the verge of starvation, yet in no case where I have put prepared cells above a queen-excluding honey-board have the bees failed to carry out and complete the cells, perfecting them to the fullest extent, so that queens reared in such cells have come up to the highest type of perfection, even though the colony below were living only from "hand to mouth." The bees in the upper stories seem to be placed in the same condition, or at least feel that they are, as when they are about to supersede their queen on account of old age, in which case all are aware that bees will rear good queens, no matter what time of year it is, or whether honey is coming in or not. In all of my six years' experience with the plan given in my book I have never failed to have queen-cells completed when placed in an upper story over a queen-excluding honey-board (which plan is similar to that given by Mr. Fooshe), except late in the fall, when bees had gone into that quietude which they go into after the honey season is past. If we wish cells then, we must feed the bees so as to arouse them to activity, when they will complete queen-cells, so that as good queens will hatch from them as any which can be produced during the summer months, or in the height of the swarming season. I am not guessing at any of this, but speak it after a practical experience along this line for the past six years.

The plan as used by Mr. Fooshe, of getting the queen-cells under way before putting them in the upper story, is practically the Alley plan, as given in his book, which you in your head-lines call "an improvement on Doolittle's plan." That just as good queens can be reared in this way as by the plan of making cells of wax, which I outlined, I have no doubt; but the objections to it are, 1. That one or more colonies must be kept queenless to start these cells, which the colony having an upper story on are to bring to completion. A queenless

colony, without brood, as he describes, is of no value in the apiary, as a honey-producer; while in the way I work, no colony is kept queenless a moment on account of queen-rearing, but all are at work in sections or for extracted honey, just the same as if I were not rearing any queens at all. 2. Mr. Fooshe has to cut his nice worker combs up into strips, on which the bees build the cells. Where one makes a business of rearing queens this is quite an item; for after we have our combs all perfect in our hives it is a pity to spoil them by cutting out long strips for queen-rearing. By making the wax cups, no combs need ever be cut, where the vision of the operator is good enough to see to the bottom of the cells to take the larva out in transferring. The third objection is the most serious to me of the whole; and that is, that by his plan the cells must be handled very carefully or else they are easily mashed; and in any event a piece of the strip of comb must accompany each cell when it is detached or separated from the bar of wood to which it was fastened, which hinders it (the cell) from being used successfully in the queen-cell protectors.

Again, unless he kills a part of the eggs or larvæ with a match, as does Alley, he will have many cells built together, so that a part must be destroyed in separating them. By using the wax cups, the cells, when completed, can be picked off the stick where they were built, about as you would pick peas from a pod, while the base of them is sufficiently stout so that the queen-cells can be pressed into the combs of queenless colonies so they will be a fixture wherever you wish them, thus saving the cutting of combs in placing the cells in the hives as we used to do, and as is pictured out in many of our books.

In nearly all of the comments on my book, I see many suppose that the book was written for queen-breeders, who follow the rearing of queens as a business; but this is a mistake. The book was written for the sole purpose of benefiting *all* in the bee-business, from the man who counts his colonies by the thousand down to the amateur who has but two or three. All parties want queens for any case of emergency which may come up, or for the purpose of superseding those which are past their usefulness, or are not of the "blood" which they wish, or to give to the parent colony after the old queen has gone out with the swarm, so that second swarming may be prevented. How handy it is, then, to rear such queens in an upper story, get them fertilized in the same by slipping in a perforated zinc partition so as to inclose a comb or two on each end of the hive, from which the queen may issue to meet the drones, and, after returning, be kept laying here till she is wanted for use, thereby aiding the queen below with brood all the time she is being held before she is wanted for use! The possibilities which are before us along the line which this perforated metal may bring us, have only begun to dawn upon us. Queens can be reared and fertilized by the thousands in any apiary, and yet no colony be kept queenless for a single moment, nor any nuclei made, but all work in the apiary be going on just the same as if no queens were being reared. The advent of the perforated metal is likely to mark an epoch in our history, fully equal to that of the honey-extractor, movable-comb hive, or any thing of the kind.

Borodino, N. Y.

G. M. DOOLITTLE.

Friend D., I shall have to own up, and

beg pardon. It is true, I have not, or had not until this morning, June 26, looked at your book more than to turn over the pages a little and look at the pictures. The reason is, that I am already overworked on reading things that I *must* read; but I now find that it would have been far better had I neglected some other things, and given your book the careful attention it deserves.

When Ernest made his review notice, he read the first six chapters; but I now see that he did not get to the most important matter in the book at all. I want to say to our readers, that friend Doolittle's book is as interesting, at least to me, as any thing I have ever read in regard to bees, hardly excepting father Langstroth's book when I first got hold of it. One reason is, that it is right along on a line where I worked for months, several years ago. I experimented by placing wire cloth between the upper and lower stories. Perforated zinc was not then known—at least I had not at my command any thing to permit the worker-bees to go above and hold back the drones and queen; therefore my experiments amounted to but little more than having queens raised in nuclei above, in strong colonies. These nuclei were either shut off entirely by wire cloth, or else these drones and queen had free access to the upper story. By having upper entrances, I succeeded in getting queen-cells built and queens fertilized to some extent; but it did not pay, and I was continually annoyed by being obliged to disturb the nucleus every time I wished to get into the lower story of the parent colony. This latter point, if I understand, is still an objection to Doolittle's method. I do not know whether friend Fooshe had read friend Doolittle's book when he wrote or not; but it is true, that the whole plan is given in very full details in chapter 7 of Doolittle's book. In chapter 13 we are told how to get queens fertilized in the same hive where there is a laying queen. These two chapters are certainly worth the price of the book to any bee-keeper. In fact, it seems to me that every man, woman, or child at all interested in bees, ought to read friend Doolittle's book. The accounts of his discoveries read like a book of fiction. In fact, it sounds to me in some parts like the Arabian Nights; and yet it is absolutely true, every word of it. You can verify it yourself with your own bees. I know it, because I have experimented all along in the same line. Those who are unfamiliar with this intricate, complicated, and wonderful matter of securing queens from an egg that would, in the usual course of events, have produced a worker-bee, will become familiar with the matter by reading friend Doolittle's story. The whole of it seems to have been written in friend Doolittle's happiest vein. I should judge that he had given the book great care and pains; and I believe that is the way he usually does every thing. One reason why I did not give the book more attention, I supposed it was a good deal a summing-up of what had been already given in the journals. But a great part of the book contains information that has never been in print before, that I know

of. Of course, it will be more interesting to those who raise queens largely than to those whose business is mostly honey-raising, and who, for the most part, let the queens raise themselves. It seems to me, however, that we can all of us smile a little when we read the book, to think how often its author talks about "nature" and nature's methods. Why, the plan he gives is the most unnatural, and there is more tinkering with nature, than in any thing that has ever before been written, and yet his methods are in perfect harmony with the natural instincts of the bees.

UNFINISHED SECTIONS.

SOME GOOD SUGGESTIONS FROM JOSHUA BULL.

IN response to your repeated invitation for reports concerning the use of unfinished sections, I wish to say that, for several years past, I have used all I could get of them. Not two or three only, just to entice the bees into the supers, but when I have plenty of them I fill some supers full of them; and the bees will fill with honey and cap them several days sooner than where full sheets of foundation are used in the sections, other things being equal, even though they may commence just as readily upon the foundation as in the other. Where foundation is used it requires a large cluster of bees in the super all the time, to carry on comb-building successfully and rapidly, when, if the combs are already built, the most of those bees can go to the field to gather nectar during the day, and evaporate it at night, as friend Doolittle has so clearly shown, and so far as quality or appearances are concerned, I should feel quite safe in offering to give to any man, be he novice or expert, all of such sections that he could detect, judging the honey alone, when they were mixed up with others which had only foundation in them when put into supers. Some of the wood might be a little more soiled, or stained with propolis, or something of that sort, by which an expert might possibly detect them; but not from the appearance of the honey or comb. I never put a section containing old honey, partially capped, into a super to be finished up, without first removing all cappings; and I never put in one containing any dark honey in time of white-honey harvest. And even empty combs that were built in the fall, when the weather was cool, are often thicker and heavier, and sometimes much darker-colored than combs built in June or July. Any such dark or heavy combs should not be used for the storage of white honey, for reasons which are too obvious to need explanation.

FLAT-BOTTOMED FOUNDATION.

Experiments last summer with different kinds of foundation, considered in connection with my experience in eating comb honey during the past year, has inclined me more than ever in favor of the use of flat-bottomed foundation in sections, because, in the first place, it is made thinner than other kinds; and then the bees, in shaping the septum, work it down yet more until the septum is not much thicker than the side walls of the cells; and when eating honey stored upon such foundation there is not such an accumulation of wax in the mouth as is usually the case when natural-base foundation is used. And in spite of all that can be

said to dispel the objections to this accumulation of wax in the mouth when eating comb honey, the fact still remains that most people like honey best when the wax is least conspicuous—at least I do.

OPEN-SIDED SECTIONS.

Before closing I want to say a few words in favor of open-sided sections. I tried a few hundred of them last year, and was so well pleased with the result that I have bought 2000 of them for this year's use; and if my present impressions prove to be well grounded, I think that I shall eventually use them exclusively. I find that, if the openings in the side of the sections are made $\frac{3}{8}$ of an inch deep, these open-sided sections can then be used in the common wide frames with ordinary separators without perforations. There must be a bee-space of about $\frac{1}{8}$ inch between the comb in the section and the separator; and if there are no perforations in the separator where the sections meet, it just gives an even passageway from one end of the frame to the other, and the bees will have no inclination to build comb over the edge of the sections to unite it with the comb in adjoining sections. I prefer tin separators, because wooden ones are liable to warp or bulge, and close some of the openings and deform the comb in some of the sections. To prevent the propolizing of the section to the end-pieces of the wide frames, I make the latter with a little block tacked into each corner of the frame, in such a manner as to hold the section $\frac{1}{4}$ inch from the end-piece, thus forming a bee-passage between the section and end of wide frame. This obviates all difficulty in that direction. I aim to have the sections fit so closely that the bees can not get any propolis between them, nor between the sections and the top or bottom bars of frames; and, furthermore, when sections are tightly pressed together it keeps them all true and square; and when they are filled with honey they brace one another up, bridge like, which helps to keep them from sagging away from the top-bar.

I have also devised a sort of clamp super, in which to use open-sided sections without wide frames; and from the little experience I had with it last year, I feel quite sanguine that it is going to prove to be a very satisfactory arrangement.

Seymour, Wis., Mar. 28, 1889. JOSHUA BULL.

We are exceedingly obliged to you for your very valuable reports on all three of the above items. Even though our experience may not be like yours, we are glad to have such facts furnished us from actual experience. In regard to flat-bottom foundation, although we advertise and sell both kinds, we sell ten pounds of the regular-base foundation to one of the flat bottom. There is this to be noticed, however, that there seems to be a slight increase in the amount sold, of the flat bottom. Whether this is due to the excellent season, or whether the flat-bottom foundation is growing somewhat in favor, we can not say. In regard to the open-side section, it seems to be going somewhat out of public favor. We constructed special machinery for making, and we expected a heavy run, but were very much surprised to find that there is very little demand for them. This may be due to general conservatism, or to the fact that a few have been tried, and were found wanting. The few sold have been for the most part to foreign countries.

MANUM IN THE APIARY WITH HIS MEN.

PRACTICAL SUGGESTIONS IN REGARD TO WORKING FOR COMB HONEY.

JULY 10. "Good-morning, Scott. Here I am again."

"Yes, sir, I see; and I am very glad to see you. I have been looking for you these two or three days."

SMOKING BEES WHEN THEY DON'T NEED IT.

"Well, I have been very busy of late in my home apiary of 60 colonies. I also have now over 100 nuclei to look after, and it is no small job to look after them and keep them busy—or, in other words, keep them supplied with queens or queen-cells, as the case may be. I have to be very careful, and not allow a young queen to get to laying too much before shipping her, or she is not safe to ship in that condition. I am having so many orders for queens just now that it takes some time to cage and mail them; and, besides, I have to look after those two new hands pretty close. I sometimes think I will never hire a boy who has never handled bees before. It makes it too hard for me during the honey season; but I shall try to worry through it this year. We will now go over the yard, to see how well the sections are being filled. Here is a clamp with every section capped over. You must watch the sections now. Although you have tiered up all around, they will finish up the top ones very quick when there are only two tiers. Where you have three or four tiers they are liable to finish two or three tiers at the same time, hence they will be longer about it. We will remove this upper tier and raise the lower one, and place empty ones under it.

GETTING THE BEES OUT OF BOXES, ETC.

Now set the two finished clamps down on the ground in front of the hive, resting one end on the alighting-board; set them up edgewise—there—so. That is another advantage these small clamps have over large ones, as there is no danger of their tipping over. No, no! don't smoke them, as that will cause the bees to bite holes in the cappings, and spoil the looks of the honey. Just let them sit there until the bees work out of them of their own accord. There is no danger of robbing while the bees are getting honey as fast as they are now. I left out nearly a ton in this way once over night; having taken it off after supper, the bees did not all get out before dark, so I left it to carry in, in the morning."

"I should hardly have thought you would dare to leave it out over night, for fear of robbers," says Scott.

"Oh! bees don't rob during a flow of honey, especially at night; and as for the boys—to whom I suppose you refer as the 'robbers'—I have no fears. I have kept bees for 19 years in our village, and I have never, to my knowledge, lost a single pound of honey by night robbers. The boys understand that it is not necessary to steal honey in this section of Vermont. I have instructed all of my men, as I did you early in the season, to offer every person who visits the yards all the honey he wants to eat; and if he objects to eating honey clear, offer him a section to take home. In this way people will not only refrain from disturbing the bees, but they will usually speak well of the honey-bee, whether they do of the bee-keeper or not."

"How is your scale hive doing?"

"Well, 18 lbs. is the best day yet—that was yesterday. I hardly think I shall get 33½ lbs. this year, in one day."

"I don't know about that. You have a good working colony in that hive; and if we get just the right kind of weather when basswood gets at its height they will come pretty near it. It wants a hot sultry day, when the atmosphere is full of moisture. Should we get such a day just at the right time, I think you will beat the old record. It is not every year that we have just the right kind of weather at just the proper time to secure such a record. But I am in hopes one of these days—or years—to be able to report 50 lbs. from one colony in one day."

ONE REASON WHY SOME COLONIES DO NOT WORK IN BOXES.

"Scott, what is the matter with 26? I have just been through that row, and I notice they are not doing much in the boxes."

"Well, sir, I don't know what the matter is. I had noticed they were not doing well, yet they seem to be working lively."

"Have you looked them over lately, to discover the trouble?"

"No, sir; but I intended to to-day."

"Well, I will look in and see if I can tell the cause. Ah! I see; they are storing their honey in the brood-combs. They have but little brood, and that is not very compact in the comb. I think we have an old queen here. There! you see, in this comb there are but few eggs, and they are scattered here and there all over the comb. That indicates a played-out queen, and here are queen-cells. Where is the record?"

"I don't know. I must have lost it. Here is last year's record."

"All right; that reads, 'Swarmed, and queen returned.' She was then two years old, hence she must be three years old now, and therefore she is exhausted. There is no use trying to winter a two-year-old queen. They are too liable to fail either in early spring or during the honey-flow. With the amount of work I require of them, two seasons' work is all I can expect of any queen, to make it profitable. We will hunt her up. There she is! catch her and pinch off her head. You see she is very clumsy and small, compared with a good young queen. You may now uncap all the honey they have in these brood-combs, and just at night introduce a young laying queen; and my opinion is, that you will soon see this honey change places, and in its place you will in due time find brood. Now, as you take off honey you may carry it into the first room of the honey-house; and, at your leisure, scrape off any brace-combs or propolis there may be on the bottom or tops of the clamps, and then store it in the plastered room to ripen. I think the next time I come you will have a load for me, so I shall probably come with two horses and take home a ton or more. You will then see how I manage to haul my honey without getting my horses stung."

July 15.—"Hello, Edward! Your bees, I see, are busy this morning. I came by the Hardscrabble road this time; and as I got directly between the apiary and the Hardscrabble ridge, where there are so many basswoods, I surely thought at first there was a swarm passing overhead, as they made such a roaring. I stopped my horse and listened; and I assure you it was sweet music to me. I could also

see them plainly as they made a curve to get around the Barnum knoll and a clump of trees; it seemed as though they were running races, and each bee was trying to get there first. I noticed that the homeward-bound bees flew much lower than outward-bound ones, owing, I suppose, to their being heavily loaded. We talk about a 'bee-line,' but these did not go straight, as they made quite a curve around the knoll instead of going over it. I have come to assist you to take off what finished clamps there may be in this yard. Yesterday I was with Henry, and I found he had a good many all finished and ready to come off. He had been so busy that the boxes had been neglected; however, the honey was not soiled a particle. Here are four clamps, well capped, on this hive, and the other two are well advanced; and if the weather holds warm a few days longer they will finish them up. I think we will not put any more on this hive, unless you have a clamp of nearly finished sections."

"Yes, sir; I have two or three such clamps."

"Very well; then in two or three days, if it holds warm, you may put on one of them. As we can not expect basswood to hold out more than five or six days longer at best, we must reduce the storage room in order not to be left with a lot of unfinished sections. Of course, we shall have some; but let us try to have as few as possible. You may also now fill up the brood-chambers with comb or foundation; that is, wherever you find a colony that has only ten or eleven combs, give the bees the full complement of twelve combs. You know that all the new swarms that came out before June 20 were hived singly and on only ten combs, with a division-board on each side to take the place of the missing combs. Now, then, just draw out these division-boards, and let a comb slide down in their place. This can be done without disturbing the other combs or the bees. These two combs being the two outside ones, I am in hopes the bees will fill them with honey before the queen finds them. A few years ago I did not do this, as then sugar was cheaper to winter on than honey; but now—oh, dear! how things have changed! and it is cheaper to winter on honey than on sugar. I want these combs put in now, because we do not have a late flow of honey here as they do in many places, especially west; and sometimes I think it is all the better for me that I do not; because if I did I should expect my bees to have the dreaded bee-diarrhea, which I think is caused by a poor quality of honey gathered late in the season, as well as an excess of pollen. Now, another thing: I want you to hunt up all the two and three year old queens in the yard. You will readily find where they are, by the records. Kill them, as I do not intend to winter a queen that is over one year old. Now is the time to do this work, while the bees are getting honey. They are not so cross now as they will be at the close of the honey-flow, nor will they rob as they would then. You may then introduce young queens from your nuclei; and if you should be short of queens I will bring you some from home. This is the time to commence preparing the bees for winter, and requeening is the first work in preparing for winter—with me. You are not obliged to do this all to-day or to-morrow, but do it as you have time, without interfering with your other work.

A. E. MANUM.

Bristol, Vt.

I am very glad indeed to see you caution the boys about smoking the bees when there is no need of smoking them. A great many beginners get into such a stereotyped way of puffing smoke into the colonies that they do it even when the bees are on their very best behavior. It reminds me of some mothers who seem to take it for granted that babies must be spanked about so often on general principles. Now, when I see a baby spanked, that is doing its very best to be good, it always puts me in a fighting mood, and I feel the same way when bees are smoked that are just as peaceable and well behaved as any thing can possibly be. I have seen bees go for the cappings right off as soon as they were smoked, when they would not meddle with them at all if the smoke were kept away.—Your hint in regard to keeping an eye on the age of the queen illustrates how exceedingly important it is that the bee-keeper be constantly on the watch, and that he know what is going on, even inside of every hive, all through the honey-flow.—I am glad the boys in your neighborhood do not steal. Friend M., is it not because you are a Christian, and are following the precepts of the Master?—I have often stopped and listened to the "sweet music" you tell us about. You say, in conclusion, that you do not intend to winter any queen that is over one year old. Now, if I understand you correctly, I do not believe we should quite agree on that. A queen that had given us a tremendous crop of honey during one season should certainly have a chance to do the same thing the next season—that is, if she seemed all right, and nearly or quite up to her former vigor. Perhaps, however, you mean that you would let them go through the second season.

HIVES.

FRIEND HEDDON OFFERS SOME SUGGESTIONS.

FRRIEND ROOT:—I desire to level my gun and fire away directly at you; and if there is any thing of sufficient value in this article to publish, do so; if not, read it over and we will have it between us. I have been much interested in your Dovetailed hive with my break-joint bee-space honey-board, etc. I eagerly open each number of GLEANINGS to see what you say about it. I have smiled, and I know many others have smiled, when reading your editorials on how popular the hive is. Now, let me go back a little. All these years, when you have been selling the Simplicity hive, and selling, perhaps, more than ten to every one I have sold of the Heddon-Langstroth hive (as I have named my modification of father Langstroth's great invention), I knew very well that the L. hive, as I used it, was very much better than your Simplicity, and that some time the truth would be known, and it would become very popular; but, of course, I can not reap the reward of my early discovery. You have a monopoly on advertising. Now, I am finding no fault. You have just what you have earned, the same as others do, and the same as the rest of us would have, had we worked it up; I am just trying to tell you how it is.

Now, your Dovetailed hive is to me simply my Heddon-Langstroth of the loose-bottom variety as I have been making and selling; but with the dovetailed corners added—not a new invention, but a new application, transferred from a soap or candle box, to a bee-hive. It is a *good* thing. Perhaps you are asking how I knew and now know that my modification of the L. hive was so much better than yours, the Simplicity. I will tell you. So very many bee-keepers like Professor Cook, Hutchinson, R. L. Taylor, F. P. Styles, and so on up to forty of them, who are bright, clear men, and practical and successful honey-producers, dropped the Simplicity and adopted my modification, that my experience and opinions were verified by these friends. But, now, friend Root, is not there something else better still? I do not expect you to see all at once the many advantages possessed by my new patented hive; but I do believe the time will come when you will fully realize and appreciate them all. In this article, let us leave out of the question the best feature of all—the divisible, alternating brood-chamber, and give our attention to the style of frame in combination with its adjustment to the brood-case. The standard eight-frame L. hive is ten inches deep. Now, if you make the same brood-case eight inches deep, and put in my close-fitting reversible frame, with end-bars loosely fitting the case, nine inches deep, it would give you the same capacity. Here is certainly an advantage; for shallowness in the brood-chamber is an immense advantage in every respect. It is easier to handle; it is better adapted to surplus storage; bees will breed up better and faster, not only in the spring, but at all other times of the year; and, lastly, they will winter better than in any deep hive. If I could get the capacity desired, as cheaply, and still keep the standard length and width, I would not have my combs over four inches deep. The fact is, the shallower the better. But, to return:

Suppose you make your dovetailed brood-case nine inches deep; nail a tin strip on the bottom of each end-piece, projecting inward an eighth of an inch; make the frames close-fitting, just the same as I make them in the new hive; and these shallow half-brood-chamber cases, put the screws through the sides, and clamp them up together snugly, so that the whole thing can be instantly inverted, as well as each frame being invertible at will, and now don't you see that you have a very much better brood-chamber than you possibly could have with the swinging loose-fitting frames? But these latter frames had some advantages; advantages which, in the minds of many bee-keepers, overcame the superiority of the close-fitting frames, but now with the new arrangement of adjusting the frames to the case, by which the glue is avoided and the frames can be handled much safer and quicker, and since wire and comb foundation have given us such straight combs, to me there is no comparison between the many advantages peculiar to this style of frame. The close-fitting frame, adjusted as in my patented hive, is, I am confident, going to win the preference with all practical honey-producers. Think of it; and after you have done so, and experimented, feeling sure as I do that you will find it as I have said above, then make the case shallow, using two of them for the complete brood-chamber of full size, and one of them when that valuable system of contraction is practiced, and you will ap-

preciate my new hive then as you now appreciate my break-joint bee-space honey-board.

Dowagiac, Mich., June 10, 1889. JAMES HEDDON.

You say, friend Heddon, that "I desire to level my gun and fire away directly at you." As there are two Roots here at the Home of the Honey-Bees, it is a little difficult to tell at which your gun is leveled. As, however, you place emphasis upon the personal pronoun *you*, the inference is that your weapon is directed at A. I. Root; but it so happens that A. I. R. is not the "game." He has neither said any thing in favor of nor against the Dovetailed hive. Neither has he "gone back on" the Simplicity. Perhaps I should say in this connection, the *I* means Ernest R., as your humble servant has written the editorials and other matter referring to the Dovetailed in particular. A. I. Root rather inclines toward the Simplicity, although he is not opposed to the Dovetailed. I make this statement so that the lack of consistency may not be ascribed to him. While in pattern the Dovetailed hive is similar, as you say, to the Heddon-Langstroth, yet in quite a number of respects it is different. The bottom-board is movable and has a raised rim, as you have already intimated. The body is dovetailed, and dispenses with the cleats at the top, and uses, instead, hand-holes. If you will turn to page 172 of that excellent work, Dabant's Revised Langstroth, you will see that our Dovetailed hive is more of a copy of the Blanton hive than of the old-style Heddon. After we had settled upon the construction of the Dovetailed hive, I accidentally ran across the engraving of the Blanton hive in the Langstroth Revised, and was surprised to note that we had both hit upon the same thing essentially. I do not quite see why you should want to call the new Dovetailed hive a Heddon-Langstroth. It is more a Blanton-Langstroth. Blanton's hive has essentially the same bottom-board and cover. The two bodies are exactly the same, without the dovetails and hand-holes.

In regard to closed-end frames, you will see by my article in last issue, under the head of Recent Developments, that I admire some of their features. It is possible that I may one day become a convert to them; but from what I now know of them, I think I should prefer the Hetherington reversible metal-casting frame; or if this should not prove to be a success, the ordinary hanging frame. I have tried your close-fitting upright repeatedly. While your thumb-screw makes its manipulation more simple, yet you do not obviate the killing of bees between the bottom of the upright and the tin support below. Of course, you can avoid it to some extent by letting it down gently, and, by a slight pressure, causing the bees to slowly work their way out; but to handle every frame thus, I tell you, takes time; and after you have gone through the sixteen, you have examined only one brood-nest. You will say, handle *hives*, examine the brood-section at once *in toto*. I can't do it as yet satisfactorily. From my present experience I should much prefer full-depth closed-end frames (if I were to choose close uprights at all), with thumb-screw arrange-

ment, to the same half-depth, with the thumb-screw.

In addition to what Ernest has said, I may remark that I have rather objected to giving the Dovetailed hive so much prominence; and I think yet that a good many will go back to the Simplicity who are trying the Dovetailed, although I concede the advantages of the latter. I hope, however, that it will always be used as an eight-frame hive, and the Simplicity always as a ten-frame. In regard to copying, in one sense the Dovetailed hive infringes on a dozen other hives. In another sense, it does not infringe on any, for the features of these dozen other hives are pretty nearly if not quite all old ideas. With the experimenters we have among the bee-fraternity, it has got to be a very hard matter, in fact, for any one to say truthfully exactly what is his invention and what is not. Scarcely a thing comes up but what has been experimented on before; most of the time the same thing has been spoken of and illustrated in some way by the various bee-journals. The Dovetailed hive can scarcely be called an *invention* in any sense, for it is only a combination of features already well known, and that have been a long time in practical use. Perhaps its greatest merit is that it is cheap, strong, and compact. It is easy to crate for shipment, and easy to put together when at its destination.

BITTER HONEY.

IS THE BITTER-WEED A BENEFIT TO BEE-KEEPERS
IN THE REGIONS WHERE IT GROWS?

WE are interested in this section about bitter honey. Pretty much all over this belt of the South, I think, we have a weed that has taken possession of all uncultivated and uncultivated land, growing as thick as oats or wheat, and lasting from May till frost. This weed, when eaten by cows, gives milk so bitter a taste that it can not be used. Some years honey is made from this weed, which, though of good consistency, and of light color, is as bitter as a syrup tinctured with quinine. There is no question as to bees working on it. They often get a large winter supply from it, and "swarm" from this fall prosperity. Two years ago I had general swarming in the fall, and the whole apiary went into winter quarters solid, late swarms and all, with fully 50 lbs. to the hive, the most of it from this weed. It appears above ground about May 1st to 15th, and blooms about August 1st. It thrives during droughts, and blooms continuously till frost. Some years the bees do not work on it much, and I have thought they used it only when nothing better was at hand. Friend Jenkins, of Wetumpka, thinks it a blessing, as it furnishes winter stores, and, coming late, does not interfere with other honey. I differ with him in this, as we sometimes have good yields from goldenrod. Prof. Cook thinks no bitter honey comes from flowers but that from bark lice. We, hereabouts, feel sure that this weed produces bitter honey; but as it was comb honey I handled two years ago, having then no extractor, I think it may be possible the pollen on the bees' feet, tramping over the comb, embittered it, and possibly the hon-

ey itself was sweet. Not being familiar with botany, I can give no description. I can send a specimen, however, when it blooms. The flower is yellow.

Bees are killing drones. Our season has been short, on account of drought. No rain in May.

Pontotoc, Miss., May 28, 1889.

C. P. COFFIN.

Quite a number of samples of bitter honey have been sent us—mostly extracted, but we have never had any opportunity of determining with very much certainty just where it came from. I have never before thought that the *pollen* might give the surplus that is *capped* a bitter taste. If such is the case, however, I think that even extracted honey might have a trace of it. I should hardly consider the bitter-weed a benefit, especially as it is always liable to injure the price of the honey.

JAMAICA LETTER.

THE GLOW-WORMS AND FIRE-FLIES OF THE TROPICS.

FRIEND ROOT:—Your letter, saying your books showed \$8.25 to my credit, was received, and is in striking contrast with the methods of some men with whom I have had to do recently. I should think some persons who are accustomed to decry Christianity could see its genuineness from a financial standpoint, if from no other. Many thanks for GLEANINGS. It has been a real source of pleasure to us as well as a storehouse of useful knowledge. Some departments are more interesting than others, yet we read all, even the advertisements. Professor Cook's department is especially interesting to us; and if he were here he would find much to interest him. While I am writing this a green lizard, *Ameiva dorsalis*, about four and a half inches long, is playing about. They are numerous in all parts of the island, and can be seen darting from your path, running on the fence, basking in the sunshine on the trunks of trees, peering from beneath leaves and out of crevices. Indoors they are seen running on the walls, darting across the floor, catching flies on your chair or desk, and playing their antics in the jalousies. When playing they crouch like a tiger, creep on their belly, and raise and lower themselves gradually three or four times, and protrude from the under side of the throat a fan-shaped disk of a crimson or orange color. When frightened or angered they turn a dark buff color. I have noticed the same lizard shed his skin about seven days later—an effect of the anger or nervous shock, I presume. Like the serpent, they suffer from their reputation. This is especially true from ladies who visit the island; and the unreasonableness of prejudice was forcibly illustrated by our neighbor, an English lady, recently. On the approach of one of these harmless, graceful little creatures, she would exclaim, "Oh, the nasty little thing! it has such a long tail!" By and by, one which had the misfortune to lose its caudal appendage came up as if to claim her approbation, when she shrieked, "Oh, the nasty little thing! it has such a short tail!" Another one, whose tail had been cut off, but had grown to half its original length, was frightened until it turned brown by the exclamation, "Oh, the nasty little thing! it has such a queer tail!"

Little Arthur is playing at my side with a glow-fly, which he calls Blinkey. I suppose it is so named because its light is intermittent. He says it has two lanterns on its back—two oval luminous spots on the dorsal surface of the thorax. These spots, or tubercles, are visible in daylight. When the insect is quiet, the spots are opaque; but when disturbed they ignite and increase in intensity until the light becomes dazzling. The color of the light is yellow-green. When its body is distended in flight it emits a light of a ruddy color from a membrane on the ventral side of the abdomen, which is thrown like the light from a bullseye lantern, and covers a space three or four feet in diameter. On a dark night the light from one of these flies makes every object in the room visible, and I have frequently determined the time of night, and got a drink for the children by it. The natives who can not afford the luxury of a lamp or candle, frequently light their houses by means of three or four of these glow-flies in a bottle. A few nights ago I met several children in the road, and all had a glow-fly, which they were using as a lantern. There are various species of fire-flies; but most conspicuous among them is *Photuris versicolor*, or "Winkey-walie," as the natives call it. It is frequently seen resting on the wall, when it will gradually increase the intensity of its light until it glows like a torch; then it gradually dies away until it becomes extinct. It will remain for a time, then gradually increase to its former brightness, and die away again. There is a clump of bamboo before the mission house at Providence that nods in the breeze like great ostrich plumes; and during the dark nights in May, myriads of these fireflies take up their abode in it; and the light from their bodies, reflected and refracted from the drop of dew on each leaf makes it a veritable burning bush. J. W. JENKINS.

Providence, Jamaica, April 17, 1889.

We are very much obliged indeed for the wonderful accounts of these insect-friends. No doubt Prof. Cook would be greatly delighted to see these things you mention; and I confess that I never before had the remotest idea that there was an insect anywhere in the world that would throw a circle of light ahead like a dark-lantern. It really seems as if they might be utilized, and bred for the special purpose of imparting light. Are they not cheaper than lights and lanterns? Who knows to what extent this wonderful peculiarity might not be increased by a little encouragement in the way of breeding and selection?

BEE-KEEPING IN CUBA.

FRIEND POPPLETON GIVES US SOME VALUABLE AND INTERESTING FIGURES.

ACCORDING to the promise I made to you nearly a year ago, I will now try to tell the readers of GLEANINGS something about bee-keeping in Cuba; but keep in mind the fact that we have been here a little over one year only, and no single season's experience can be full and complete enough to enable one to judge accurately as to resources, methods, etc.

So far as I can learn, the first movable-comb apiary in Cuba was established five years ago last October on the estate of the brothers Casanova, about 18 miles east of Havana, by A. J. King and A. W.

Osborn, the latter remaining in charge for two years, when he came here, ten miles southwest of Havana, and established this one. Mr. King also established another one a little over a year ago, some 200 miles east of here; but this was not run for honey last winter. So far as I know, these are the only movable-comb apiaries in Cuba; but others are contemplated. The Casanova apiary is fitted with hives and appliances for some 600 colonies, and this one for 500. Mr. P. Casanova has kindly furnished me with such records of his apiary as he has; but I find it impossible to obtain complete information of the workings of that apiary. Nov. 11, 1883, Mr. Osborn reports 92 colonies alive of the 100 shipped from New York. Feb. 19, 1885, he reports 113 colonies on Dec. 1, previously, and a yield of 40,125 lbs. of honey. May 7, he reports having increased during the previous year from 34 to 555 colonies, the 113 of those having survived the summer. I can get no report of the following year, but the report for the honey season of 1886-'87 is, number of one-story colonies, 41; of two-story colonies, 126; of three stories, 113. Total, 280. Honey obtained, 50,000 lbs. Season of 1887-'88, no record of colonies, but obtained 32,500 lbs. of honey. Last fall they had 62 colonies in single stories, and 322 in two and three story hives. Total, 384. Honey obtained, 20,000 lbs.

The following report of the results obtained at this apiary is as nearly correct as I can get them. Apiary started early in 1886, by the purchase of some 40 colonies in Cuban box hives, which were transferred and increased during the year to about 130 colonies, 80 of which were in condition to store honey during the extracting season, which that year closed Feb. 1, not because honey had entirely ceased flowing, but because a large increase of colonies was desired. Crop secured, 30,000 lbs. During the spring and summer of 1887 the apiary was increased to 500 colonies; but many of these died before and during the honey season, so that when I took charge of the apiary, Feb. 15, 1888, I found 411 colonies. The total yield that season was a little over 45,000 lbs.; but some more than 3000 lbs. was fed back during the following summer, leaving the net yield 42,000 lbs. We increased the apiary during last summer to only 436 colonies; but the hurricane which made so disastrous a visitation to Cuba last September blew down nearly half of our beehives, killing in their fall some 30 colonies, so we commenced the season with 400 colonies, about 325 of them strong enough to store honey in upper stories. We have taken out 50,000 lbs. of honey; but out of that will have to come the amount required for feeding back during the coming summer—an unknown quantity. Since March 1, I have increased the apiary to its full capacity of 498 colonies. So much for the actual statistics of what has been done.

Bee-keeping in Cuba is very different from bee-keeping in the States, on account of the honey-flow coming in winter instead of in the summer. I will try to give some idea of the honey-flow during each month of the year, commencing with June. These figures, or estimates, relate to a 400-colony apiary, which would, of course, be changed for a larger or smaller one. June showed an average loss of about 2 lbs. of honey per colony, this being the first month of the year when the bees gathered less than they used. The loss in July, also in August, was about the same as for June, with a still greater average loss during the first half of September. We

were obliged to feed two-thirds of the colonies during all this time, the other third gathering enough for their own use, and some 20 of the best ones giving not to exceed 5 lbs. each of surplus honey to other weak ones. About the middle of September, honey commenced to come in slowly, increasing in quantity during all of October, and until the middle of November, when it slackened off some until the 1st of December. I estimated the average increase of stores during October at 5 lbs. per colony, and during November at 15 lbs. We started the extractor Nov. 1, taking out nearly 6000 lbs. during that month. The first appreciable amount of bellflower honey came in Nov. 28, the main flow from which lasted through December and January. We had an average hive on scales, and the following table gives the daily yields during the principal honey months.

In this table the daily gain is given in ordinary figures; the daily loss, in black; when there was no gain, nor loss, in ciphers; and days when we extracted from that colony are marked with an X. At the commencement of the honey harvest I selected three of the strongest and best-working colonies in the apiary, and carefully weighed all the honey taken from them. The total yields were respectively 31 $\frac{1}{2}$ lbs., 3.9%, and 280 lbs. each, during the four months from Nov. 1 to March 1. These were very strong colonies, occupied fully three stories, and, in fact, I do not think there were any other three colonies in the apiary that stored an equal amount of honey. From the 1st of February the yield of honey gradually slackened until the 1st of June, my estimate of the average gain of stores per colony being 8 lbs. during March; 3 in April, and 1 in May.

O. O. POPPLETON.

Havana, Cuba, June 1, 1889.

(Concluded in next issue.)

SHIPPING-PACKAGES FOR COMB HONEY.

A PROMINENT COMMISSION FIRM FURNISH SOME SUGGESTIONS.

REPORTS of the U. S. Honey Producers' Exchange as to condition of bees, and prospects of this year's honey crop, are very favorable and promising. The number of apiarists is continually increasing. It is expected that many carloads of fancy white-sage comb honey, put up in modern eastern style, will be shipped from California to our markets. In view of this increasing supplies, the important question becomes more pertinent: How shall we create more demand for honey? Our reply is:

1. Increase its intrinsic value for the consumer.
2. Reduce the risk of loss by breakage.
3. Make packages as attractive and handy as possible, of light-weighting material, at the least possible cost to the consumer.

When the consumer buys a pound of butter at 20 cts. he receives 16 ounces net. When he means to buy a pound of honey at 20 cts. he receives, in many cases, only about 10 ounces of honey, the in-

trinsic value of which, at the above rate, is only 12 $\frac{1}{2}$ cts., and 6 ounces of wood and glass or pasteboard, which is worth nothing to him. Nevertheless he has to pay 7 $\frac{1}{2}$ cts. for this nothing, and yet we expect more demand of that consumer. The lady who does not realize this fact may, unless she is one of the upper ten, at least get the impression that honey is quite an expensive luxury. Of course, the apiarist has paid for glass and wood and paper box, and spent so much labor and time to put up his honey nicely, and for this he expects to be remunerated, and possibly to make a little extra by the weight of the packing material. But what does the consumer care for all that, who simply wants his money's worth of honey? As all producers depend on the consumer at the end, our aim must be to satisfy the wants of the consumer. We propose, therefore, to use a light-weighting, attractive, and handy paper carton at the smallest possible cost.

As we have had the best opportunity to see and compare hundreds of different styles of honey-packages, we have selected the very best, and made some improvements, so that we may safely say that honey put up in this style will sell, first of all, at best prices, and give satisfaction. It is true, that glassed honey looks quite tempting, and that goods must be shown; but what we have said above is not only true, but it is also a statement of the true value. In order to show the honey, put one glassed comb in on each side of the crate, and the other combs in paper cartons. This refers to 1-lb. sections of fancy (No. 1), and fair (No. 2) white, and 1-lb. No. 1 buckwheat comb honey only; of 2-lb. sections and No. 1 buckwheat fancy white, two-thirds should be glassed (the glass weighing less in proportion), and one-third not glassed; 2-lb. sections of fair white, of mixed, and of No. 2 buckwheat and of 1 lb. sections of mixed and unfilled, should be without glass and paper, in order to reduce the cost, and know what the goods really are.

WHAT SHALL WE DO TO PROTECT OUR HONEY AGAINST BREAKAGE?

If eggs were not packed so nicely in patent paper boxes, or in chopped straw, most of the dealers would decline to handle those delicate structures. Is comb honey less delicately constructed? No, it is not; and for this reason some additional arrangements ought to be made in packing to prevent loss, and to avoid trouble, and to make the handling less sticky. Before comb honey reaches the consumer it passes through the hands of many persons who do not understand at all how to handle so fragile an article, and knock crates about, as if they were bricks. Besides, comb honey is generally shaken up so badly, when carted on the pavements of the streets in cities, that some of it is bound to break and to leak out.

One of our best customers, for whom a nice lot of honey had been smashed up entirely, said he would never touch comb honey again if he could help it, because of the annoyance and loss connected with that sticky article. We know of many similar cases where dealers became disgusted, and would not handle comb honey at all, because of the risk connected with the business. Remedy this by using Strohmeyer's comb-protector, which will prevent breakage; and if there should be one leaking comb in a crate, our comb-protector will prevent the soiling of the other combs. Our comb-protector requires $\frac{3}{8}$ inch more in height of crates. By using our attractive new style of paper carton

and comb-protector you will save labor, time, and expenses, and thereby be enabled to market your honey early in the season, when the best prices can be obtained. You will reduce the cost, decrease loss by breakage, but increase the demand, and consequently obtain larger profits.

F. G. STROHMEYER & CO.

New York, May 22, 1889.

All right, friends Strohmeyer & Co. Send us samples of your new improvement, just as soon as you can, and give us some pictures to give to our readers. You are exactly on the very track where we wanted to see you; and we can stand considerable free advertising, if you will just give us something practical, to prevent daubing and breakage.

MOVING BEES.

CAPITAL SUGGESTION FROM S. I. FREEBORN, OF
BASSWOOD FAME.

I READ with interest every thing touching on this point. I have often wondered if other folks had the trouble that I did, and were alive to the risks incurred in moving bees. It seems,

Mr. Editor, that others besides myself have found that bees and horses do not always harmonize. I can join with C. C. Miller in the sigh of relief in the fall when through moving bees; but for myself, I don't dread spring and fall moving as much as summer moving, when stocks are more populous, and weather warmer.

THE KIND OF VEHICLE BEST ADAPTED FOR MOVING BEES.

I have had occasion at times to move bees during every month in the year. I have moved by almost every kind of vehicle—wagons, sleds, buggies, spring wagons, and those without springs. I thought at one time that we should use springs, or put something soft under them, as straw or hay; but of late years I have put nothing softer than the wagon-box under them. I have tried several kinds of racks, but have voted them unhandy and cumbersome. I have simmered down to two wagon-boxes 1½ feet long, made double—boxes like those on farmers' wagons for hauling corn and other produce. We find these handy for hauling bees, apple-trees, and many other kinds of luggage. They will hold 12 double Langstroth or Gallup hives, or 24 single ones. We have 100 screens of the size of the top of the hives that we nail on after fastening frames and bottom-boards. We pack well with hay or straw around the hives, to keep them from rocking. In this way we have moved hundreds of colonies, and many times over as rough roads as there are in this county, and that is rough enough.

DISASTERS IN MOVING BEES; HOW TO AVOID.

Previous to last season, we had killed but very few colonies—probably four or five in 30 years. Last season we met our Waterloo, killing 16 colonies in one trip. Several causes served as helps to this disaster: The distance was considerable (24 miles), there was too much honey; the weather was very hot, and the colonies were extra strong. In our first trip of this move, we left in the full number of frames; in the next loads we took out five or six frames from each upper story, making them cooler, and furnishing an empty space to cluster in. The last moved had the advantage of being 6 miles nearer destination than those moved first, with the

additional precaution of less frames. We moved the last lot with success.

As an offset to the loss of last season, I will give a short account of moving 72 colonies in the summer of 1879, which was my first experience in moving to the mint (last of July, 10 miles distance). I wished to move the strongest colonies, many bees lying out. The question was, how to move such populous stocks and make it safe for them and the horses. We solved the problem by nailing some wire screens over empty hives, and fastening one on top of each colony moved, making them three stories high, with nothing but bees and air in upper stories. The experiment was a success, as we broke only one comb out of the 72 colonies in moving down, and did not get a horse stung at all; but we used every precaution to guard against the bees getting out.

SHIPPING BEES BY RAIL.

In regard to this matter I will say I am not authority, having done but little of it, and that only a short distance. I have lately been in correspondence with a gentleman who has been in the habit of shipping his bees from Missouri to Mississippi, to winter, taking in the early honey season there, and then returning in time for white clover in Missouri. He reported the venture as a success, but informed me that he had great difficulty in keeping his bees cool in returning. As they were then numerous, and the weather warm, he was obliged to use ice to keep them quiet enough to stand the trip. I have also been in correspondence with a man from Michigan in regard to

MOVING BEES FROM THE SOUTH TO THE NORTH, to take in the different honey seasons. His plan, as he wrote me in early spring, was to buy bees in Arkansas, take in the poplar and basswood harvest, then move north till he struck white clover in its prime; after clover, pack for Wisconsin and gather in clover, basswood, mint, and whatever else he could. I referred him to C. O. Perrine's venture on the Mississippi, and others, cautioning him of the loss of brood in long transits, and the difficulties of having bees in condition to gather an immediate harvest after a long trip. He has, I believe, modified his plans so as to take the early harvest in Arkansas, and be satisfied with what he can get in Wisconsin without stopping midway.

GETTING HORSES STUNG; AN INGENUOUS PLAN TO LOOSEN THEM FROM THE WAGON INSTANTLY, IN CASE OF EMERGENCY.

In regard to the danger of getting horses stung while moving bees, and the dire consequences that might follow, I can heartily join with Bro. Root in saying that C. C. Miller's caution is timely. Yes, I should say be careful. If a man needs to be cautioned when about to catch a mule by the hind leg, or a rattlesnake by the tail, then it will be in order to caution him about mixing bees and horses. There is one part of Miller's tactics that I think I will leave for you and him to practice—that is rubbing the horses' heads and noses when the bees are after them. I prefer to be at the other end, with a good hold of the lines. In the first place, I would emphasize the caution—when moving bees, don't leave the hives so they will leak bees; but if, by some mishap, they do get out, get bees and horses apart as soon as possible. To do this with all dispatch, we have our whiffletree-pins greased so they will pull out easily. We also have a piece of rope tied around the upper end, extending up to within easy reach of the driver; so in case of any stinging, the

horses can be detached in double-quick time from the load till things are righted. S. I. FREEBORN.

Ithaca, Wis., June, 1889.

You have hit it exactly. Have the pin that holds the doubletrees, made with a loop or eye in the top, and then hitch a stout rope to it that will not break, or, better still, a chain, and let the driver sit on the front end of the wagon, with the bolt between his feet. If the bolt is greased, as you suggest, and does not stick, he can jerk it out, even if the team were drawing on the doubletrees. With one horse, the whiffletree to the wagon would have to be arranged the same way; then fix the hold-backs so they will easily slip off from the thills, and the driver can skip, leaving the wagon behind at any moment, on short notice.

HONEY STATISTICS, ETC.

FROM ONE OF THE FRIENDS IN THE SOUTH.

FRIEND ROOT:—GLEANINGS, June 1st, is at hand, and you are to be congratulated on its beauty, valuable contents, and general completeness. The new feature, "Honey Statistics," is a most important one. I was surprised, however, to note the large percentage of "bees wintered," in the Southern reports, as experience in this section coincides with that reported from Louisiana, where a large per cent starved. Box hives, of course, and those governed by "kings," are the chief sufferers. The winter was so mild that bees were flying a large part of the time, and stores were consumed to an extent unusual. Leaving my apiary well supplied, and the hives equalized as to sealed stores, I was absent all winter. Returning I found one colony out of 26 starved—a very strong but *energetic* colony. Its energy was doubtless its ruin. Though this colony need not have been lost, and my "showing," as it was, a very fair one, still, a cold winter would have started things off in spring in far better trim for the honey season, while many box-hive men lost all, and many more from 50 to 95 per cent.

I use Simplicity single-story hives on summer stands for wintering, with some natural shelter (cedars) on the north. In this connection I will add, I use old pieces of ingrain carpet on top of the enamel cloth, on some hives, and on crates, when first placed; and I am satisfied in both cases it is beneficial, and I *know* a large piece of the same material thrown over the outside will cause bees to go into sections in cool weather when they will not otherwise.

I have obtained real clover honey this spring, to a very considerable extent—something unusual here. It was from white, alsike, and red, the Italians going $3\frac{1}{2}$ miles for the latter. Sweet clover is just coming in and promises great things, being 7 feet high, and the few blooms open are covered with bees.

MORE ABOUT THE BUTCHER BIRD.

The butcher bird Prof. Cook tells of is a familiar acquaintance of mine, and I have often seen him doing what the genial professor describes. A favorite tree is the honey-locust, on whose thorns this little butcher impales his prey. In my daily walk to the village I always see one near a thorn-bush that had been cut down and thrown into a gully. Only a few days ago I stopped a little friend

to show her a large grasshopper that I had just seen this bird transfix on one of the sharp thorns. When in Florida some years ago, one of these species used one of my young orange-trees to such an extent that it seemed to bear, as fruit, scorpions, lizards, small birds, grasshoppers, and the like, all at "one crop," so to speak. Wilson, Nuttall, Audubon—all, I think, speak of this trait in the great shrike.

LOSING CARP EGGS.

I can sympathize with you in the matter of losing carp eggs by the thieves, such as minnows, frogs, snakes, and turtles, and, I almost forgot, crawfish; and I am satisfied that, for those of us who are not expert pisciculturists, and who can not afford to drain often and have special breeding-ponds, carp culture will prove a failure unless some cheap, easy plan is adopted, by means of which the eggs and very young fry can be artificially protected till the young fish are large enough to care for themselves. Here is a plan I think cheap and practicable: Make a wire-cloth cage, as large as you wish (tacking the cloth on a wooden frame), having a door that will shut tight, on top. When the fish spawn, collect all the grass or other debris on which the eggs have caught, and place it in this minnow and frog proof cage, which should be put in shallow water. I take it for granted you know how to tell when carp spawn. It can be told by the commotion they make in the water the first warm weather. I always know, and see them. The above will succeed, for I have used a barrel this year, and hatched them successfully. Plenty of drift grass or straw should always be supplied for this purpose beforehand. My ponds are also flower-gardens, and it might interest you and some of your readers to know how easily such a spot may be beautified. I will only say, that if you should come this way some time I could place you on a diminutive island surrounded by flowers, let you thrust your fishing-rod through a "virgin's bower," drop your hook among the lily-pads, and land your tenth carp in a bed of pansies, if, in your excitement, your fish did not catch in a Marechal Niel rose, fifteen feet overhead.

C. P. COFFIN.

Pontotoc, Miss., June 7, 1889.

I am very much obliged indeed, for the additional facts you give us in regard to the butcher-bird; also your suggestions on raising young carp. I do know that all you say might be done; but just now I am watching and waiting for some boy who loves fish, just as you and I used to love to study about bees. When this boy makes his appearance, I am going to give him charge of my carp-pond, and he and I together, I am pretty sure, can raise carp as easily as our boys in the garden raise celery-plants. May be we could sell little ones at the same price, if we could only send them by mail. Your flower-garden in the middle of your carp-pond almost induces me to promise to pay you a visit. I have had dreams of such an island, but I didn't know that anybody had worked it out. My strawberry-bed alongside of Champion Brook terminates on the bank of the carp-pond, and I have long thought of having some flowers on the banks of the pond where the weeds grow so rampant; but I tell you, friend C., it not only takes money but brains to keep any thing of this kind nice. Perhaps your

island, covered with flowers, is just now a "thing of beauty;" but are you sure it will continue to be a "joy for ever"? If you keep it up, see if I don't come and see you one of these days; and, by the way, when you had those wee little carp in your barrel, didn't some sort of enemies, by some hook or crook, sooner or later get into the barrel also?

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

A REPLY FROM THE PUBLISHERS OF THE BRITANNICA.

MR. A. I. ROOT:—Your favor of the 7th inst., in relation to the article on "Glucose," in the American Supplement to the *Encyclopaedia Britannica*, is received. We started an investigation immediately, and find that our author, Mr. Morris, has not, in our opinion, as good grounds for his assertions as he should have had. It is a matter of regret to us that Mr. Morris did not probe the matter deeper, and follow the rumors until he found either the truth or an error. It is also a matter of regret that you allowed this article to stand so long as it has, without calling attention to it sooner. This article was published some three years ago, and our attention was first called to it by Dr. Nysewander, of Des Moines, Iowa, under date of May 13th, closely followed by yours of the 7th of June. To us it is inexplicable how an article of this sort, which you seemed to be hunting in such sincerity, has been allowed to run so long without your discovering it.

We thank you for calling our attention to the matter now, and we shall have further investigation made, and correct the plates of our book, to correspond with the truth of the matter.

HUBBARD BROS.

Philadelphia, Pa., June 14, 1889.

Very good, friends. I do not know that we have ever before had so frank and fair an acknowledgment from the publishers of any book or newspaper in regard to this whole matter; and even though you have turned around on us a little, we do not feel hurt. In fact, we own up. Brother bee-keepers, it is a burning shame that not one among us had enterprise enough to notice such a statement until it had been three years in print. We shall have to give Dr. Nysewander the credit for having been the first one to see the false statement. Yes, we have been hunting with great "sincerity," but it seems that we did not alight on your publication before. There is one thing, however, that we should like to urge, if you will excuse us. You say you will correct the plates. Now, just have a printed slip of errata, or something of that kind, put into each book already published, and, as far as possible, sent to all who have purchased the work, and we shall be quite satisfied, and grateful to you besides. You speak about further investigation. We should be very glad indeed to furnish you the results of the investigations we have

made for the past four or five years. And now, brother bee-keepers, let us each and every one make it a point to consult the cyclopedias and all other works of that character, to see that the statements made are truthful, and that they do justice, both to the honey-bees and to the bee-keepers of the world.

"THOU SHALT NOT BEAR FALSE WITNESS AGAINST THY NEIGHBOR."

But, oh dear me! we have not got through the business yet, by any means. See the following:

Mr. Root:—Give the enterprising editor a "boost." Santa Monica, Cal., June 10, 1889. C. S. LEWIS.

Below is the newspaper clipping that came with the above.

THERE appears to be no limit to the adulteration and fraudulent substitution practiced with articles of food and drink. One might suppose that honey in the comb, at least, would be safe from humbug; but even this has been successfully imitated of late. Artificial comb is made of paraffine wax, and filled with glucose; and after the cell have been sealed with paraffine, the resemblance to the genuine article is perfect. This is an "advance" upon the older fraud of feeding bees with glucose, which the industrious insects proceeded to laboriously transfer to the comb.—*Marysville Appeal*.

Thank you, friend L., for sending us the clipping. Now, dear brothers of the *Marysville Appeal*, it is not the adulteration business that is so unlimited, bad as it is; but it is this matter of bearing false witness against your neighbor which is unlimited. We have mailed you one of our reward cards, and we hope you will be kind enough and fair enough to publish to your readers a retraction. We ask friend Lewis, and every other good bee-man, to see that it is done.

And now we find in the *Philadelphia Record* the following heading to a sensational article:

BEES CAN TAKE A REST.

THEY ARE NO LONGER NEEDED AS HONEY-MAKERS.

COMMERCIAL CUNNING MAKES THE COMB OF PARAFFINE AND THE HONEY OF GLUCOSE, AND THE PUBLIC CAN'T DETECT IT.

Below the above is one of the usual sensational strings of truth and untruth. Now, dear friends of the *Record*, we want to tell you that you are bearing false witness against your neighbor—an honest, industrious, and hard-working neighbor—a neighbor who has never harmed nor wronged you, but who has, in fact, been too busy earning his bread by the sweat of his face to think of damaging or injuring his fellow-man in the way in which you have injured and damaged him by your thoughtless editorial. The *Philadelphia Record* has for years been on our exchange list, and is almost daily on our table, and this makes us feel a little sadder than to see such statements in other papers which have not had the plain facts set before them every two weeks, year after year, as we have done for the *Record* folks. Now, dear friends will you not just take a little space to correct this wrong (although you never can do so fully), and do justice to an honest and industrious class of people?

And here is another piece of news (?) clipped from the *Sun*, of New York, printed

Sunday, June 9. Our stenographer suggests that, if they *must* tell lies, they do it on some other day than Sunday. Read:

The worst enemy of the honey-raiser is the producer of artificial and adulterated honey. It is easy to adulterate honey, but only recently have men become ingenious and skillful enough to make honey in the comb, both the honey and the comb being artificially produced. The spurious product looks almost exactly like that created by bees, and it is put up in the little square boxes, with windowed sides, like those used in hives. It is possible to detect the imitation, only by tasting it, by which test anybody who has a tooth for genuine honey can easily detect the fraud. The counterfeit is so skillfully executed, however, that it frequently deceives a novice. A New York man in a restaurant in this city the other night called for honey in the comb, and five boxes were purchased for him at as many different groceries before one of genuine honey was obtained. He then described the method of artificial honey-making, and in conclusion said that he was a drummer for a New York honey house.

Will the *Sun* people be kind enough to contradict the false statement they have probably unconsciously made in regard to their neighbors? We also send them one of our reward cards.

THE SAME OLD FALSEHOOD IN OTHER SHEEP'S CLOTHING.

The inclosed clipping was taken from the *Evening News*, Chicago, of May 29, 1889. ED HILE.
Muskegon, Mich., June 3, 1889.

MANUFACTURED HONEY; HOW ONE OF NATURE'S PRODUCTS IS SUCCESSFULLY COUNTERFEITED.

It is very likely the desire to be too quickly rich that makes the grocer sand his sugar, and the apothecary trifle with his life-saving drugs, and the weaver put cotton with his wool and starch with his cotton; but it hardly makes much difference to the consumer, those that suffer in consequence, what is the occasion of the act; it is enough for him, and considerably more than enough, that it is done. Yet when he finds the sediment of sand at the bottom of his coffee-cup he is glad it is there rather than down his throat; and he knows that if the apothecary has made the curative medicine too weak he has also diminished the power of the poisonous; and in general, fancying himself beyond the possibility of reaching or remedying the evil, he goes on submitting to it, thanks goodness it is no worse, that the air of heaven is licensed to no shop-keeper, and one has not yet succeeded in patenting the essential element of fire, so that he may breathe and keep warm without fear of adulteration. Two or three things besides, he has flattered himself, were beyond the coveting hand of greed; among them the egg, for instance, and the bee with that geometrical work of his which has for ages been doing all sorts of things with the brains of philosophers. Lately he has heard some dreadful suspicions as to the possibility of counterfeiting of the egg, but he dismissed them as absurdities. But when he heard that the honey-men bought glucose and set down a mass of it before their bee-hives, the bees at once accepted the benefaction, glad at heart to find their food close at hand, without the trouble of blundering about gardens and into blossoms, and no long flights to take on weary wings; he felt that at any rate it passed through the mechanism of the bee and got the tang and taste of honey, if it were not the expressed flower essence at first hand. But recently, says Harper's *Bazar*, he has received a shock in which the walls of his last stronghold have crumbled. There are new adulterators, if you will call them so, counterfeiters, what you will, who prepare artificial combs from paraffine as geometrical in shape, as waxy in appearance, and who fill these combs with clear syrup and seal them, so that apparently not even the bee could tell the difference between the false and the true. He sees with horror that the article sacred to sunshine and summer and poetry, to the Bible land flowing with milk and honey, to Sordello's song of Elys, is vanishing from the market and the table; and unless a man keeps his

own bees he may doubt if he is eating any thing but strained-glucose syrup at the time when he would like to be indulging in all sorts of fine and flowery fancies concerning his honey in the honey-comb.

And so it seems that even Harper's *Bazar* has gone into the enemy's ranks, and taking to bearing false witness against their neighbor. If any of our readers can tell us what issue of the *Bazar* contained the matter referred to in the above, we shall esteem it a favor.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

ORANGE-BLOSSOM HONEY NOT A MYTH; O. O. POPPLETON'S STATEMENT CHALLENGED.

I DID not know until recently, that there was any question as to orange-blossoms yielding honey. I have been in Florida five years, and have taken more or less surplus honey from that source every year; and if my bees had not been so weakened by moving from Wisconsin I could have taken it by the ton the first year; for a blossom, when shaken over the hand, would deposit a good-sized drop; and my bees, although mere nuclei, and too few in numbers to work in upper stories, filled their brood-combs to the exclusion of brood. I have this season taken 1000 pounds in one-pound sections, and 200 in broken honey. Most of the former I sent to Hildreth Bros., of New York, who sold it at 14½ and 15 cents per pound—not a fancy price, to be sure, but as high as white clover in the same market, to which it is in no way inferior; for its flavor (although different, of course) is as good and wears as well, while it is fully as white in color. I had 35 stocks in the apiary, and have 63 now. A friend of mine in a town near by reports having taken 100 pounds in sections from a swarm that issued in March.

After five and a half years continuous residence in Florida my family and self will this summer revisit the scenes of our childhood in Southern Wisconsin, where we hope to spend two months with old friends and neighbors. J. L. WOLFENDEN.

Evanston, Fla., June 10, 1889.

THE VALUE OF SALT, SOOT, LIME, ETC., ON LAND.

We had a pasture once, and nothing would eat the grass. We sowed about 600 lbs. of salt per acre on it. In a short time, both sheep and cows took it and ate it bare, after which a good grass came up. Salt is a good fertilizer on light land that is apt to burn up; so is lime or both mixed. Lime is a good fertilizer on land that grows much wheat or white straw of any kind, especially if it is deficient in the soil; 25 to 30 tons per acre has a marked and permanent effect. Soot is a valuable manure. There is a great deal used in England. The chimney-sweeps save all they get, and sell it to the farmers. Once I was going to put soot on a field that I thought needed lime, and I had both mixed in a room in the barn. The ammonia set free was too strong to make it pleasant staying in the room. After that I never mixed them, for ammonia is very volatile, and I concluded all that was set free was lost. When I first noticed the effect of soot as a manure, I asked the knowing ones where its manurial value lay, and I was told that it had no

actual value as a manure, but acted somehow in a "mechanical way." My experiment with the lime satisfied me. Lime should never be mixed with manure. It may cause a quick start, but the ammonia is wasted.

GEO. E. HALL.

Lyle, Tex.

Friend H., I have often seen soot recommended, and even liquid manure, made by stirring a small quantity of soot in a barrel of water; but I have always been much inclined to think that it was only a notion. In fact, I do not know that I ever tried soot at all. Now, when you tell me that soot mixed with lime gives off ammonia in the same way as does guano when mixed with lime, then I can understand it readily. But where does the ammonia come from? I supposed that soot is principally carbon, and that it is just about as good as so much charcoal dust and no more. Charcoal dust is valuable only as an absorbent; at the same time it makes the soil black so as to attract the rays of the sun. As soon as I can get hold of some soot I will test it in the way you mention.

MOISTURE IN HIVES; WHENCE DOES IT COME?

I received the oil-cloth covers per express to-day. Will you kindly explain to me why so much moisture is in my hives? I have 60 colonies of bees in various styles of hives, the majority being Simplicity, Langstroth, and American, and all of them have oil-cloth covers over the section boxes. We have had a very wet season for the past five or six weeks, and the section boxes in some of the hives have been perfectly soaked with moisture, while in others they are dry. Why the difference? Upon raising the oil-cloth at almost any time, it is found covered with great drops of water, apparently perspiration. This can not be from the evaporation of the nectar, for none or little has been brought in. The section boxes are so swollen in some of the Simplicity and Langstroth hives that they burst (partly) apart the T super, and I am obliged to open the hive after every shower to let out moisture. Have you had other complaints like this, regarding the use of the oil-cloth?

D. F. OGDEN.

Boulder, Col., June 11, 1899.

If it were in our locality I should say it was all owing to the exceedingly damp weather; but, if I am correct, you never have damp weather in June in Colorado. The oil-cloth, without question, has something to do with it. We have never noticed any such trouble as you mention, in the summer time, in our locality.

A NUT FOR PROFESSOR COOK TO CRACK; AN ACTUAL EYE-WITNESS TO A BEE BITING THROUGH THE TUBE OF THE WILD TOUCH-ME-NOT.

In GLEANINGS for June 1st, 1899, page 440, Prof. Cook says, "I do not say that honey-bees never cut into flower-tubes, but I feel very positive that this is the case." If my memory serves me right, it was J. L. Davis, of Holt, Ingham Co., Mich., who told me that bees would bite into the flower of what is here called the wild touch-me-not. Wishing to see it done, I went to a patch of said flowers, which was only about six rods from my house and a few feet from my bee-yard. Bees were quite plentiful on the flowers. My eye caught an Italian bee; he put his head into the open flower for an instant,

then he went to the bow end of the flower, which I saw had been bitten into by something. He took only a snuff at the hole, and darted to another flower, which was just right for me to see the whole operation in the flower. He went into the open end, backed out, and went to the bow end, and plied his jaws with a vim. With three or four bites he made a hole, and thrust his bill into it for about three seconds, and I followed him to two other flowers which were worked upon about the same by the bees. He visited several other flowers before he reached the last two flowers that he bit into; then I lost sight of him. This was some years ago. I have watched many times since to see them bite the same kind of flowers, but failed every time. There is no mistake in the above. J. L. LEWIS.

West Windsor, Eaton Co., Mich.

Well, I declare, friend L., I am now more than ever convinced that I was right, for I thought I saw the same thing you mention. I guess we won't change the A B C book yet, after all—certainly not until we hear from Prof. Cook in regard to the matter.

ALSIKE CLOVER, AND ONE OF ITS PECULIARITIES. THE VALUE OF THE STATISTICAL REPORT.

I notice in GLEANINGS that friend Gough thinks alsike is a cross between white and red clover. My experience with it has been, that, if it is pastured, or the soil becomes hard or dry from any other cause, it is very liable to look like white clover. I have a piece that has been sown for several years; although it has not been pastured, the ground is hard; and when it bloomed out first this season I think any one would have called it white clover; but since the excessive rains it has grown rank, and has a pink blossom.

I think the statistical report in GLEANINGS is worth the price charged. I have enjoyed reading your travels; and, in fact, GLEANINGS is good from beginning to end, and no bee-keeper should be without it. Bees are doing well here now, and the prospect is good for a good crop of honey, although there were some new swarms that starved the latter part of May.

J. T. VANPETTEN.

Linn, Kan., June 12, 1899.

SUNDAY SWARMING.

I had a rather singular experience with a swarm last Sunday (favorite day with my bees). They settled on a large limb in the top of a locust-tree, about 30 feet from the ground. It was too large to saw off. I succeeded in hiving them by using frames filled with comb. Pressing a comb against the swarm, I would wait until it was covered with bees, and then bring it down. Seven or eight trips sufficed to bring down all but a few. I brushed them off with a feather duster, and they followed down the ladder like a drove of pigs.

Crescent Hill, Ky., May 30, 1899. I. T. GAINES.

STRAWBOARD FOR T-SUPER COVERS, ETC.

In your foot-note to L. A. Duggan's letter, May 15, you say, "Very likely thick paper or strawboard would answer nicely for the inside of chaff hives." I have been trying strawboard T super covers this spring, $\frac{1}{4}$ inch thick, painted two coats. A few hours of rain will water-soak them so they will come to pieces; and I think even for the inside of a hive the moisture from the bees would soon ren-

der it worthless. Would not some kind of cement, molded in the form of a board, make good T-super covers, or plaster of Paris, if covered in cold weather? My board covers, with a shade-board over them, have to be loaded with stone to prevent twisting and curling up endwise.

Vienna, N. Y., May 25, 1889. V. W. TREMAIN.

The account of your experiment is valuable, inasmuch as it may save others, who had strawboard in mind, both time and money.

SUGAR SYRUP NEVER HONEY.

I will ask a question, and should like to see it answered in GLEANINGS by the veterans. One year ago last fall a friend fed two swarms with white sugar, after bee-pasture was killed, and the bees filled a great many sections of the whitest and most beautiful honey to look at I ever saw. He asked me to taste it. I did so, and I certainly would have taken it for honey; at least, there was quite a flavor of honey mixed with it. From what source came that flavor of honey? Can the most skillful chemist take the clover blossom and extract from it honey that will have the flavor bees give it? Bees will take the most bitter and ugly flowers, and extract from them a fair article of honey. You probably will say you can detect a flavor of the blossom; but how do the bees give it the flavor of honey?

La Otto, Ind., May 30, 1889. E. S. HANSON.

Friend H., you are making a mistake. Bees might sometimes make a fair article of honey from bitter flowers; but, as a rule, the honey is but slightly changed by being carried into the hive, except in the ripening process; and sugar syrup does not make honey. You made some mistake, or your people were careless in tasting. It has been tried by bee-keepers hundreds of times; and any one accustomed to the taste of sugar and honey will detect the sugar syrup at once. Even if it could not be noticed, it would not be profitable to feed the bees with it to get them to store it for honey.

PAPIER-MACHE FOR COMBS; LEMONADE SWEETENED WITH HONEY, GOOD.

Why couldn't the combs be made of papier-mache instead of wood? They could not absorb any more wax, and it certainly would not take any more wax per hive than foundation does. Did you ever sweeten lemonade with honey? We think it is nicer than sugar. Several who can not eat honey have drank the lemonade at our house, and felt no trouble from the honey sweetening.

Los Alamos, Cal. MRS. J. HILTON.

The objections to papier-mache instead of wood for honey-combs, is that the bees will every now and then, especially during a dearth of honey, go to work and tear the paper all to pieces; in fact, I have never seen any paper they would not tear up sooner or later in this way. They seem to imagine that any thing like paper has something to do with the bee-moth, and so they clean it out.

DISINFECTING CHAFF HIVES OF FOUL-BROOD GERMS.

I made my first chaff hive when 12 years old; but that horrible scourge, foul brood, got into our apiary. I say *ours*, for my brothers had bees as well as myself; and before we knew what was wrong, they

were in the last stages of foul brood, and nearly all died. We melted the combs, but the hives are all chaff hives, and it seems too bad to burn them. Now, will the hives need to be pulled to pieces and scalded inside and out, or will it do to scald the inside? Would not boiling water do as well as steam? Is there any danger in leaving the empty hives standing close to the apiary before they are scalded?

OSCAR TRUSSLER.

Strasburg, Ont., April 30, 1889.

It will not do to leave those infected chaff hives near the apiary for any great length of time. We suppose, of course, the entrances have been closed in the mean time. It is a very difficult matter to disinfect chaff hives. If you can get a kettle large enough, and can make sure that the water is brought to the boiling-point, you can disinfect the hive by removing the bottom and taking out the chaff, after which immerse them for about a full minute in the boiling water. I would keep them in the water as long as this, or longer, if you can conveniently, because the water is liable not to reach all the inside portions of the hive. We send you the latest edition of the A B C book. We advise you to read carefully the instructions on this point. We would say, in regard to chaff hives, that we have had very poor success in disinfecting them. We disinfected our last lot of hives by knocking them to pieces and burning them up, for we can make new ones about as cheaply as we can fuss with old ones, and then not have something as good, in the bargain.

CHILLED AND FOUL BROOD.

1. Is it a common occurrence in spring for a few scattered dead larvæ to be found here and there through a number of hives in the apiary, death being caused presumably either by neglect of the nurses or some disease, the larvæ flattening out and seeming watery and grayish? 2. If so, is it usual that, on arrival of the honey season, this condition ceases to exist, or will it, in a poor season, or with a weak colony, still continue, and probably develop into disease involving the ultimate destruction of the colony, with danger of infection to others?

R. W. McDONNELL.

Galt, Ont., Can., June 4, 1889.

1. The dead larvæ you describe are evidently chilled brood. The heads of the grubs first turn black, the larva shrinks, and finally settles into a pulpy gray or a grayish-yellow mass. If it turned to a coffee brown, and the matured matter were ropy—that is, tenacious, like spittle, it would have all the appearance of foul brood. While chilled brood resembles foul brood, it lacks the important symptoms; viz., ropiness and color. 2. Chilled brood can never develop into foul brood, which is always propagated by germs. Corn never grows where corn was never planted. Foul brood can never start without the existence of microscopic germs, called, technically, *bacillus alvei*. Chilled brood might be a better medium for the reception of these germs than ordinary living brood, providing that the spores were in the air. A weak constitution in the human family is more susceptible to the germs of smallpox or yellow fever than a healthy vigorous person.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth \$1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text book before sending in their questions.

QUEENS FERTILIZED BUT ONCE.

J. D., Mississippi.—So far as our present knowledge extends, queens meet the drones but once in their lives. If a queen once produces Italian workers, she will always produce the same kind of bees.

TEXAS WHITE-CLOVER HONEY.

C. A. W., Texas.—Your sample of Texas white clover came duly to hand, and was tested. In color and body it is good. While better than the average grade of Southern honey as to flavor, it is not quite equal to the Northern clover, we think.

RUSHING OUT AT THE ENTRANCE.

H. L., Texas.—When there is a dearth of honey, feeding will always cause the bees to rush out to the entrance in excitement. The reason they fly out is because they are anxious to know whence comes this wealth of sweet, as it is evident to them that stores are coming in from some source.

WHY ARE THE BEES DYING AT THE ENTRANCE?

S. W. B., Ohio.—If your bees are dying at the entrance, and young bees are being carried out, it is pretty evident that they have been starving. Bees behave very much in this way when their stores are used up. The remedy, of course, is to feed at once, preferably granulated-sugar syrup.

A FRAME OF HATCHING BROOD, AND A FEW BEES, NOT A CURE FOR THE NAMELESS BEE-DISEASE.

H. M. H., New York.—Giving a frame of hatching brood and a few bees to a colony will not cure it of the nameless bee disease, provided the source of the trouble is with the queen. Her removal always effects a cure, and this proves pretty conclusively that the disease originates with her.

VIRGIN QUEENS SOMETIMES THE CAUSE OF AFTER-SWARMING.

H. F. G., New York.—A surplus of young queens immediately after the first swarm is pretty apt to give rise to a second swarm; and as long as there remains two or more virgin queens in the hive, there is apt to be swarming. Second swarms sometimes come out when the young queen comes out for her wedding-trip.

UPWARD VENTILATION; WHEN TO REMOVE PACKING FROM CHAFF HIVES.

C. B. W., Ohio.—Our chaff hives—at least the two-story—are so made as to provide for some upward ventilation through the chaff cushion. In cellar wintering, upward ventilation is not only unnecessary, but it is even detrimental. We remove our packing from the chaff hives soon after frosty weather and cool nights, which with us is about the middle of May.

WHY BEES SOMETIMES TEAR DOWN FOUNDATION.

E. E. S., Illinois.—The reason why your bees tore down the foundation is possibly due to the fact that

very little if any honey was coming in, when bees have nothing to do but to gnaw around the wires and get into mischief generally. If you want them to patch up the combs again, feed them, or remove the combs and put them in the hive again, when honey is coming in at a fair rate. Bees never gnaw holes in foundation when honey is coming in.

TO PREVENT SWARMING.

T. G. D., Ohio.—It is very difficult to prevent swarming when bees get the swarming mania, as yours seem to have. The only advice we can give you is to give the bees plenty of room, plenty of shade, and ample entrance; and we would advise you to cut out all the queen-cells but one. In eight days, again cut out the remaining cells that may be found. Perhaps you had better hive the old swarm on top of the old hive. As soon as the swarming fever is over, unite the two again.

CAN OLD HIVES, AND COMBS IN WHICH BEES HAVE DIED, BE USED FOR NEW SWARMS?

M. U., Ohio.—Those hives which you have, which are spotted with dysentery, and in which the bees have died, during the past winter, can be given to new swarms, or, in fact, to other colonies. The bees will very soon set things to rights. They will clean the dead bees out of the combs, and make the hives just as habitable as they were before. For further particulars, see "Wintering," in the A B C book; also "Dysentery."

HOW TO GROW BASSWOOD.

M. N. E., Michigan.—On p. 292, 1882, we published an exhaustive article on basswoods—when to gather seeds, how to grow the young trees, etc. It was written by Fr. Holtke, Carlstadt, Bergen Co., N. J. If you will consult some nurseryman, we have no doubt he will give you the information you require. Usually, young basswoods can be obtained in the woods. If they do not abound in your locality, you can purchase them of A. I. Root, Medina, O., who will send you small trees.

FULL-WIDTH ENTRANCE; THE HONEY-BEARD AND BRACE-COMBS.

H. S. B., Maryland.—It will be best to allow the full width of entrance, if you have a strong colony, or if the bees cover, say, 6 or 7 frames tolerably well. It is only weak colonies, and during a honey-dearth, that the entrance of a hive should be contracted. So far we have no practical method for preventing bees from building brace-combs between the brood-frames and honey-boards. All that a honey-board can be made to do is to prevent brace-combs from itself to the sections or surplus arrangement above.

SEPARATING ADVERTISEMENTS FROM THE READING-MATTER, FOR BINDING PURPOSES.

A. C. M., Rhode Island. We have thought of that same matter you speak of in reference to the make-up of GLEANINGS before; but on account of the rush of advertisements at the very last minute, and the necessity of getting in an important editorial or special notice, our reading-matter crowds in sometimes on to the advertising space; and the advertising space, on account of the large number of advertisements, sometimes upon the reading-matter. This condition of affairs is well nigh unavoidable; at least, we can not obviate the trouble without great expense, and we are not sure that the inconvenience it affords a very few would warrant

it. A great majority do not bind their periodicals at all. Only a very few even file their journals, and there is perhaps not one in 200 who goes to the trouble to tear out the advertising leaves, and have the journals properly bound in cloth covers. We can tell pretty nearly what this number is, because it is much cheaper for those who want their journals bound properly to send them to us, which they do. In referring, as we are often obliged to do, to old journals, we frequently find the advertising pages of as much importance as the reading pages. In one case, quite an important fraud was exposed and brought to a stop by consulting the advertising pages of old bee-journals. The first bound volume we found had had its advertising pages stripped off before binding. We finally succeeded, however, in finding this same journal, bound, advertisements and all. For files of old magazines or journals, saved for reference, I should by all means prefer to have the advertisements left in.

probably more a matter of mercy to the little cattle on sweltering summer days than an actual winner of dollars and cents. I am not quite sure of this, however; but it certainly pays to shade newly hived swarms.

E. E. HASTY.

With double-walled hives we prefer to set the hives in the sun. I think shade-trees are an injury. Our hive side walls are three inches thick; honey-board on top, $\frac{3}{4}$ inch thick. I put a cap over the hives, about 7 inches deep; roof boards $\frac{7}{8}$ inch thick. With that much protection from the sun there is no need of shade.

E. FRANCE.

No, nor anywhere else, providing the hives are painted white. Mine are all white that are painted at all, and I have never had any combs melt down, nor have the bees appeared inconvenienced by the heat. In one or two instances I have had the combs melt down in the unpainted hives, but not often enough to pay for shading them, in this locality.

G. M. DOOLITTLE.

Yes, by all means use a shade-board about two by three feet. I prefer this kind of shade for either an out-apiary or home apiary. I value it more highly than any other kind of shade. My reasons are given in my contribution to the *Review* for June, wherein will be found many articles from able writers upon the question of shade for bee-hives.

JAMES HEDDON.

I think it does pay to shade hives. It lessens the liability of melting the combs in very hot weather, and diminishes swarming. I use for shade on hives that stand exposed to the sun, about one yard of cheap calico, costing about 3 cents, tacked to two sides of a cover, and place the cover on top of the hive in such a manner as to leave an open space behind the cloth that hangs down on two sides of the hive. It is cheap and convenient.

H. R. BOARDMAN.

Owing to the construction of my old hives I never used shade-boards until the last two years on a different hive, and I have come to the conclusion that it does not pay to fuss with them. If there is honey in the flowers, the bees will be after it in full force, if the weather is as hot as blazes. If there is no honey, the bees might as well loaf on the shady side of the hive as to loaf inside. If you fear melting combs, don't use that kind of hive. A shade-board, to be of real use, should be made like a large umbrella; and even then every wind would disarrange them. In an out-apiary they would be a positive nuisance from the above cause. Let us let the shade-board go.

RAMBLER.

Bees, by fanning and partly vacating their hive, have, like the healthy human system by perspiration, the power of regulating the internal temperature. I find most danger of melting down combs while extracting or otherwise disturbing the normal condition of the hive. It seems to me the disadvantages of the shade being in the way, and its shading the bees when they would be better without it, overbalance all the good results where the thermometer does not go above 100° in the shade more than five or six days in the season. When the thermometer rises above 95° I should prefer to have some one present to elevate one end of the cover, or in some way assist the bees temporarily to ventilate the hive and save the bother and expense of a cover.

R. WILKIN.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 133.—*Does it pay to make any special provision for shade in an out-apiary, by means of shade-boards or otherwise, providing that the location does not afford trees or other natural shrubbery?*

No, it does not. GEO. GRIMM.

Yes. I prefer a shade-board. A. J. COOK.

This depends upon the construction of the hive. With our hive it pays. P. H. ELWOOD.

Yes. If there is not already satisfactory shade, I would use shade-boards. JAMES A. GREEN.

Yes, by all means. We make movable roofs, which improve the looks of the hives.

DADANT & SON.

I think it pays to shade hives from the full glare of the sun, both home and out apiaries.

O. O. POPPLETON.

Yes, where single-walled hives are used. With double-walled hives, or chaff, it is not necessary.

A. E. MANUM.

Yes, but much depends on location, the way the hives face, and how ventilated. S. I. FREEBORN.

Yes. I have tried the shade of trees, and also the shade-board, and much prefer the latter.

A. B. MASON.

It does. No combs will melt if the roof of the hive is raised only one inch to admit of an air passage over the inside body of the hive.

C. F. MUTH.

I have no doubt that it pays, as I have always noticed that those that were partially shaded did better than those fully exposed to the sun.

P. L. VIALON.

If the hives are painted white, probably not. If the hives are a dark color, yes. Place the hives in long rows, and have the shade in the shape of a roof high enough for a person to stand erect under it.

MRS. L. HARRISON.

I think this depends somewhat upon latitude and location. For the northern half of Ohio, shade is

During the hottest weather I think it may pay to use cheap shade-boards, or long grass, held on with a stick of firewood; and yet those hives which don't happen to have trees to shade them are generally left without shade, in my apiaries. I value shade comparatively little for the bees; but I want shade for the comfort of the operator, and could not think of locating an out-apiary where no shade could be had. My son, after reading the above, says Mr. Oatman would have given him a serious talking-to if he had omitted shade-boards, as combs would melt down if the hives were left unshaded. It occurs to me that an important difference in the two cases is that his hives are closed tight, except at the entrance, while mine have an opening at the upper back end of the brood-chamber, so that a current of air can pass directly through.

C. C. MILLER.

When doctors disagree, who shall decide? In reading the above, I have been quite a little amused, because I have at different times, in years past, decided in favor of shade, and then, again, I have decided that I would not have the shade if I could have it for nothing. My final decision has been, however, that the grapevines, arranged as we advise, are all the shade we need. During the spring months, when we want all the sunshine there is, there is no foliage on the vines; while during the great heat of summer, the foliage is most needed, and can be easily regulated then by clipping the shoots with a common sickle. I do not believe that we could ever be persuaded to bother with shade-boards, one for each hive.

QUESTION 134.—a. How much per colony do you estimate it costs to move bees to and from an out-apiary? b. Does the cartage of bees figure as any considerable item in the cost of honey production?

I have had no experience.

A. J. COOK.

I have had no experience.

PAUL L. VIALLO.

I have had but little experience in moving bees.

O. O. POPPLETON.

a. For taking and return, about 15 cents per colony. Better management might greatly reduce that.

b. Yes.

C. C. MILLER.

a. I have not had very much experience in this line, but I think 20 cents would be a liberal estimate. b. I think not.

JAMES A. GREEN.

The cost is a trifle, and the trouble involved lies more in the danger of damage to the combs and bees than in any thing else.

DADANT & SON.

a. I don't know. b. An inconvenience, as time is money, and expenses should be considered when making up the cost of production.

C. F. MUTH.

That depends upon the number of hives to be moved, distance, accessibility of location, etc. I should think that 50 cents per hive would probably be a fair average of cost of moving and returning.

MRS. L. HARRISON.

A man and team will move on the average about twenty-five swarms per day. Make your own estimate. b. The cartage is not so large an item as the extra trouble and expense after. Not many bee-keepers will stand it to ride ten or twelve miles per day and do a large hurrying day's work besides.

P. H. ELWOOD.

I have had no experience in moving bees to out-apiaries; but from what I have handled bees, I should place the cost at not far from 50 cents per colony for moving them five miles in the spring, and then back again in the fall.

G. M. DOOLITTLE.

a. In moving 105 colonies last year, 18 miles, both ways, it cost about 90 cents per colony, not counting the loss of those killed. Should we count the damage to the 15 swarms that were killed, it would make the expense of each about \$1.75. b. Yes, if moved far or often.

S. I. FREEBORN.

a. That depends upon the distance and condition of the roads, and conveniences for hauling. It costs me about 25 cents per colony to move bees to and from an apiary six miles away. b. Yes, the actual expense and loss of colonies (if any are lost) should be figured as expense to that particular apiary.

A. E. MANUM.

It depends very much on the size of the hives. Our hives, we can take only 12 colonies at a load. Then again the distance to move would make some difference. We don't move our bees home to winter. Our bees are all wintered on their summer stands. All the moving we do is to equalize out-apiaries, and to gather from the different yards bees to form a new apiary.

E. FRANCE.

a. It doesn't generally cost me any thing, for I have my own horse and wagon; but once it cost me a new dash to my spring wagon, and part of a tug to the harness, and over a mile walk, saying nothing about the trouble of combing the stings off my head. I had more hair then than now. b. As the cartage doesn't cost me any thing, it doesn't figure in the cost of honey.

A. B. MASON.

It depends very much on the skill or tact of the apiarist, the convenience for handling, etc. If I had to move all of my bees back and forth to out-apiaries twice each year I should consider it a big job. I have wintering-repositories at all my out-apiaries. I think it is impossible to answer the question definitely in the short space allowed. Bees may be moved quite cheaply, or it may be a very expensive work.

H. R. BOARDMAN.

a. It would not do for me to give you an estimate in figures, because so very much depends upon your location, the distance you propose to move, the roads, and the methods employed, and the price of such in your locality. b. Yes, the cartage of bees from one place to another in moving them after honey secretion, considered in all its lights, not only money outlay but attending dangers, labor, care, attention and all these things, is, in my judgment, always of more cost than it comes to.

JAMES HEDDON.

As I never had an out-apiary, my estimate can have no special value in comparison with the actual figures which experience can give—but, here goes:

Moving apiary of 20 hives—

Team 1 day at \$2.00 - - - \$2.00

Man 3 days at \$1.25 - - - 3.75

5.75

Same in returning - - - 5.75

Total - - - \$11.50

This would be one cent a pound on 1150 pounds of honey, and oftentimes the surplus they would gather would be less than that.

E. E. HASTY.

a, b. This depends upon distance and other things. It will cost from 10 to 15 cents per colony to move them a distance of 10 or 15 miles, fluring hauling, etc. It depends, of course, a great deal upon the condition of the hive and season of the year. In the spring and fall, when there are no supers to trouble with, I can prepare 20 colonies (one load) for hauling in about an hour. I always use a notched cross-bar in the bottom of the hive to hold the frames apart, and also have the ends of the frame rest in notches, so that all I need to do is to screw down the cover and tack a screen across the portico.

GEO. GRIMM.

a. With me a teamster has made ordinary wages in hauling my bees 20 miles for 12½ cents per hive. He would take on 80 hives with four horses and a trail (a wagon hitched on behind), at a load; but with me I would add another 12½ cents for preparing the hives to ship (I do not use close-fitting frames), and the disadvantages from bees, mixing up by change of locality. Besides this, and what would deter me from moving much more than the cost, is the dread of mishaps from teams, although I have been hauling them a great deal for the last thirty years, with no greater loss than the breaking of a wagon-tongue; but I know there is constant danger; but with two men (one of them a bee-man), with two horses easily detached from the wagon, they can be moved with almost positive safety. b. Ordinarily I would say, certainly not. R. WILKIN.

a. I winter my bees in a cellar at the out-apiary. There is no cartage expense. If they were brought home, the cost would depend on many things—time in preparing bees for cartage, number of colonies to be carted, distance, and whether one or two horses, etc., were employed. As I fix my hives for carting, I would estimate the cost of moving 100 colonies to and from the home yard at 15 cents per colony, for a distance of not over five miles. b. I do not consider the curting much of an item. I would itemize the foregoing as follows, from the home apiary:

33 hives at a load, distance 5 miles, cost of team per trip, \$2.00.	Three loads,	\$6.00
To home apiary,		6.00
Two hours' work preparing 33 swarms for cartage, about 4 minutes to a swarm, 25 cents per hour, or for the 100 colonies for two movings,		3.00

Total - - - - - \$15.00

The above team's work, I think, could be done even cheaper for the distance, in my locality.

RAMBLER.

The above seems to cover the whole ground so thoroughly that I do not know that I have any thing to add. I was quite interested in what R. Wilkin has to say; for in California they do a great deal more moving of bees than we do; and it will for ever remain a mystery to me how they carry bees up in the canyons, especially such a one as I first passed up in company with friend Wilkin, and Mr. and Mrs. Mercer. It seemed to me that the only way to get up there was to carry one hive at a time, by hand, through the worst places. Our folks here in Ohio would have said, without hesitation, that it would be madness to think of driving a horse and buggy through such passages, leaving bees entirely out of the question.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

Please do not forget those apple-barrels that were the shape of a stovepipe. Please tell Ernest to give us Our Own Apiary at least four times a year.

Dorr, Mich.

JOHN SHORT.

COCKROACHES.

Mr. W. L. Coggs, West Groton, N. Y., sends me some cockroaches, with two of the egg capsules. He asks me to give habits, etc., through GLEANINGS. As I have already done so on p. 882, 1888, it is not necessary to repeat it. They are doubtless about his hives for warmth and shelter, and possibly for honey.

A. J. COOK.

Agricultural College, Mich., June 5, 1889.

O. O. POPPLETON AND THE ORANGE-BLOSSOM HONEY.

I protest against the statement made by Mr. O. O. Poppleton, regarding orange-blossom honey, page 444. It is the *surest* crop of honey of any during the year; but bees are not always in condition to store it in great quantities; but it always starts a boom in brood-rearing, and with me it is the best season for queen-rearing. They worked 6 weeks on it this spring. The conditions were good. I have had 5 years' experience.

NELLIE ADAMS.

Sorrento, Fla., June 5, 1889.

ARE BEES TAXABLE PROPERTY?

Are bees taxable? I am the assessor of this township. I was also assessor last year. I have not listed bees for taxation, neither have my predecessors. I told the preceding assessors they were not. I gained that impression from GLEANINGS.

D. P. LISTER.

Lac-qui-parle, Minn., June 10, 1889.

[We have for a good many years paid taxes on our bees. The matter was discussed at some length in GLEANINGS several years ago. Doolittle and some others thought bees should not be taxed, while I took the ground that they were just as much property as horses, sheep, or cattle. In some places they tax them and in others they do not. I prefer to have our bees taxed, because it gives me a clearer conscience.]

FROM BOOMING TO DOING NOTHING.

I wrote you last week that "bees were booming here." They were at that time; but the very next day the weather changed from warm and pleasant to cold and wet, and the bees have done nothing for nearly a week. Hence some of my neighbor bee-keepers are getting a little "blue;" but, not I—oh, no! I have lots of courage yet in reserve, hence I am hoping, and shall continue to hope to the last.

Bristol, Vt., June 10, 1889.

A. E. MANUM.

ON THE VERGE OF STARVATION.

Bees have been on the verge of starvation for several weeks during the continued cold stormy weather that has prevailed. Many have actually perished, and those not actually dead are badly demoralized. I have visited a number of apiaries, and find this condition prevailing everywhere. White clover is coming forward now, so that they are getting enough from day to day to just barely keep the wolf from the door. Careful watching and feeding has saved mine, but not without considerable damage.

H. R. BOARDMAN.

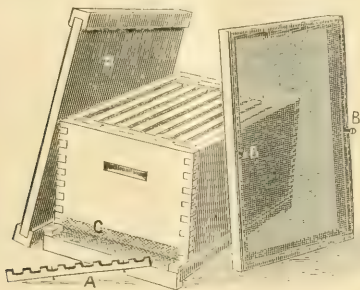
East Townsend, O., June 11, 1889.

RECENT DEVELOPMENTS

CONDUCTED BY ERNEST R. ROOT.

THE DOVETAILED HIVE FOR SHIPPING.

ON pages 468 and '91 incidentally referred to the special fitness of the new Dovetailed hive for moving and shipping bees. When we changed from the beveled to the square edge, we had no idea (*we* means Mr. Warner, Mr. Calvert, and your humble servant) that the square edge made the hive better adapted to moving bees. Why so? In the first place, the bottom of the Dovetailed hive can be made permanent or movable. For the purpose of moving to the basswood orchard, we have been having all the bottoms secured to the hive by means of two screws, one on each side and centrally located. Two wood screws were found to hold the bottom very securely. With the beveled-edge Simplicity, it is practically impossible to fix the bottom on account of the beveled edges. After the bees have been moved in the Dovetailed hive and it becomes desirable to raise the brood-chamber up, or in any case where the removal of the brood-chamber becomes necessary, all we have to do is to tip up the hive, and with a screwdriver remove the two wood screws. Propolis will hold the bottom-board and hive together during the operation. The hive is then set back in position, when a screwdriver will readily loosen the bottom-board. Having obtained some photographic views I will now proceed to give you a more detailed description.



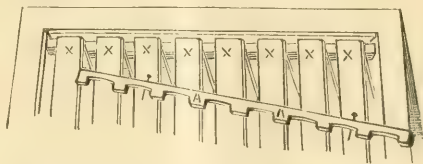
THE DOVETAILED HIVE PREPARED FOR SHIPPING BEES.

In the cut, the bottom-board has been secured by the screws referred to. The entrance is closed by a piece of wire cloth of suitable length, and folded longitudinally through the middle. For moving short distances, two or three tacks will secure it. When shipping by express it is better to use a number of tacks, as shown in the engraving.

The wire screen is simply a section of the Dovetailed hive cut off so as to make a rim $1\frac{1}{2}$ inches deep. These rims are made from dovetailed sides and ends which are defective, either because of knots or checks. A piece of wire cloth 26 inches wide is cut in two in the middle, longitudinally, making a strip of just the right width to tack upon the rim. In the center of each side to the rim, a screw-hole is made, and the screen is

secured to the hive by two screws, B, B, as shown in the engraving. There is no tacking, pounding, nor driving of nails when putting on the screen, nor, in fact, when removing the same.

To secure the frames from shucking about, we use a notched stick, shown at A. One of these strips is tacked to the bottom-board, notches upward, to space the bottom-bars; and two of these strips are used at each end above the frames. The strips are of the right width to fill up the space taken out by the rabbet; and when the wire screen is screwed down, these strips are held by the end pieces of the rim. In the engraving, the notched sticks are represented as being nailed to hold them securely. In shipping by express this will be a necessary precaution; but in ordinary moving, the screen itself, with the usual amount of wax and propolis, prevents the strips from coming out of place. To give you a better idea of fastening the frames, the enlarged drawing below has been made.



The notches, A, A, slip down between the spaces in the frames X, etc. It may be asked in this connection, why we do not use the spacing-boards which we have advertised for some years back. Principally because they were too much trouble. In each hive six boards were required, and these are to be nailed on the ends on the inside, three at each end. On account of the usual amount of propolis and wax that is deposited upon the sides of the frames, we find it a very difficult matter to shove the end-bars down into these longitudinal grooves in the spacing-boards. The operation becomes still more difficult after the bees have fixed them with propolis. Some of the worst cases of robbing and stinging we ever had were brought about in the effort to remove the frames from the spacing-boards. When I come to compare the ease of manipulation of the notched sticks I almost wonder that we did not discard the boards sooner. The time occupied in preparing some 20 or 30 hives for shipment, or for moving, is now reduced to a minimum, and we are sure that our customers will welcome the change.

I am aware that, for all wood frames, and for ordinary moving to out-apiaries, the spacing-strips will not be absolutely necessary; but as the frames we moved were metal-cornered, and as it was early in the season, before brace-combs were built out, we found that the spacing-sticks were necessary. They are certainly necessary in any case for shipment by express. If the Hetherington-Vandeusen frames are a success we shall not need the spacers at all.

P. S.—Of course, it will be understood that the notched sticks—in fact, the whole arrangement above, is old; but it is good just the same. Such bee-keepers as A. E. Manum use the notched stick.

MYSELF AND MY NEIGHBORS.

Thou shalt love thy neighbor.—Lev. 19: 18.

YOU may wonder why I did not add the customary "as thyself." But I prefer to leave it off—at least just now—because it seems to me that this old command has been repeated so often that it falls on the ear almost without effect. Another thing, quite a large class of humanity smile, or sometimes laugh outright; and others go even so far as to jeer and throw ridicule whenever the subject is mentioned of loving *anybody* as a man loves himself. People say, "There can't anybody do it;" and, again, "Nobody ever did do it;" and, "It is all humbug," etc. Perhaps some of these friends forget that Christ Jesus did actually, through every moment of his life, love his neighbors *more* than he loved himself. Well, mankind will have to have their own way, I suppose. Those who ridicule this little text, however, are, I believe, without exception, bad, selfish men. They oftentimes say it would be a good thing if people *would* actually love others more and self less, and then they go on and tell about pretense and hypocrisy, and they say we Christians do not have any more love for our fellow-men, when we come right down to it, than other folks; and I think very likely we need a great deal of exhortation in this very line. All I am going to ask you to-day is that you shall love your neighbor. If he is not lovable, love him as much as you can. If he hates you, even then the best thing you can do is to love him. If he is hateful and abusive, do not get weary in trying to soften him by kind acts. Do not pay any attention to his unkind words or spiteful actions. Try to love your neighbor, whoever he may be. Yes, try to love *all* your neighbors, and to do them good. If something happens that is going to take money out of your pocket, try to see if it does not put money into the pocket of somebody else, and be happy because of the good it does *such* a one. I know what it is to get into a strife to see who shall get the most trade and make the most money; but I know, too, that we can fight down this natural desire to accumulate ourselves, and find a far greater happiness in seeing our *neighbors* accumulate and prosper and do well.

I have said considerable of late about low prices. I have suggested to you, that, if you received only from 10 to 15 cents a bushel for your potatoes, some neighbor of yours got his potatoes exceedingly low. You may urge that there is reason in all things, and that a man can not be very happy and feel very pleasant when he does not get enough for his produce to pay the cost of production. Yes, there is truth in this; but for all that, when circumstances make it necessary for you to sell to your neighbor something for less than it actually cost you, you can still congratulate him on his good fortune. Your loss is his gain. Another thing, we Christians have the promise that, if we seek first the kingdom of God, and his

righteousness, all things else shall be added unto us.

I told you, June 13, that we were getting 15 cts. a quart for our strawberries. Just after our journal went out, however, the boys on the wagon reported that we could not sell them as fast as they were picked, unless the price came down. So they came down to 14 cents; then to 12; then to 10. Each decline started a fresh run on them for perhaps a day; but when people began to find that the berries were dropping regularly each morning, they very soon began to take it for granted that it was to be the regular programme, and so they would not buy to can until they got lower. When they got down to 8 cents I thought that was low enough—we certainly ought to have 8 cents for such nice berries. But as people would not buy the 10 or 12 bushels we were picking, at 8 cts., what was to be done? We had had some experience in letting a lot lie over, and that certainly did not pay. Our customers were beginning to say, "If you will give me some that were picked this morning, I will take some; but I don't want any that were picked yesterday." Some went even so far as to decline having any in the evening that were picked the same morning. We remonstrated; but they knew we were picking all the while, and they preferred those which had been only an hour from the berry-patch, and that had not been jolted around on the wagon. There was no help for it. We were obliged to carry a few at a time, sell them off, and then go back for more, thus making quick work from pickers to consumers. This state of affairs rendered it still *more* necessary that the berries be made to go off at *some* price. Well, they went down to 7 cts.; then to 6; then to 5 cts.; and one day I felt a little blue when the boys declared that the whole town of Medina (2000 inhabitants) would not take all the berries we were picking, even for 5 cents. They suggested shipping them off somewhere. Now, my experience in shipping off garden stuff has not been very favorable. Sometimes it sells for enough to pay the express charges, and sometimes it doesn't. The berries *must* be sold in Medina. Mr. Weed suggested that, if we could get rid of what we had on hand, maybe we could keep our heads above water. I accordingly went round to the hands in the factory and asked how many wanted some nice strawberries, just picked, for only 5 cts. I looked pleasant and good natured about it, but there did not seem to be any demand, even at this very low price. I have been told that some said they guessed the berries would be lower still than 5 cts., next day. I confess I was inclined to feel a little bit discouraged, and I don't know but I did suggest to my wife that I would plow up part of my vines and not raise so many berries, especially as it seemed evident that we were raising too many for our small town. I had not yet read friend Terry's article, which you will find on another page, in regard to this matter; but when I did read it, it caused me to smile. My wife suggested that our beautiful berries, instead of affording me recreation and enjoyment, were adding to my

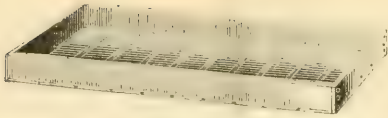
cares, and making me look worried. It would be a little sad if *strawberries* should be the means of *adding* wrinkles to my face that is already pretty well furrowed. Some of you may say, "Surely A. I. Root would, at such a crisis, have taken his cares and perplexities to the kind Father; for, in fact, he taught just that in his book, 'What to Do,'" and with all the advice that this world can furnish in regard to what to do in perplexities, is there any thing to be compared with that beautiful injunction, "Cast thy burden on the Lord"? As soon as I thought it, however, I began to be a little ashamed of myself. If I were a poor man, on a little homestead, with a mortgage hanging over me, and I were depending on my berries to help to lift the mortgage, then I might complain about getting only 5 cts. a quart. If sickness and death were near, and money were needed to pay the doctor's bill, then might I pray God to help me to get better prices. As it was, I actually felt ashamed to ask the kind Father for any help at all in that direction. I did ask him, however, to help me to feel happy and glad because I was able to give nice fresh berries to my friends and neighbors for only 5 cts. a quart. Well, the prayer was answered very speedily. I became glad and happy "straightway," as Mark says. My daughter Constance (Blue Eyes, you know) has been taking me to task for using the word *got*. It came in once or twice in my last Home talk, and she says it is not "good grammar." Well, whether it is good or bad, I "got" happy. I really enjoyed selling berries for 5 cts. Then what do you think happened? Somebody, I really don't know why, suddenly concluded that the berries might not get any lower, and ordered half a bushel at 5 cents a quart. Then another neighbor thought they would take the chances, and take theirs for canning at 5 cts. And pretty soon somebody suggested that the berries would come *up* very soon. Now, you may think it strange; but within an hour we engaged more at 5 cts. a quart than we had to spare; and pretty soon the young man who superintends the children who are doing the picking, told me they were not going to have as many as they *had been* getting. By the way, this young man is one of the printers. It is a rather dull season just now in the composing-room; and as he had often begged to get outdoors we gave him this post. You ought to see how we have tanned him up during the last ten days. He seems to prefer to be outdoors, however, for all that. Well, after we had taken as many orders as we dared to at 5 cents, we took some more at 6. Meanwhile the people had "got" an idea that the price of the berries was running up again, and everybody was in a hurry to buy. Up they went to 7 and then to 8; and then came the state of affairs where we charged one man 8 cts. for his berries, and the other 6 or even 5, because they were to fill an old contract, made when the berries were low.* This taught us not to make any

more contracts. So the men on our wagon told the customers, "We will pick and deliver them any time you wish, but we can not agree on any particular price. You can have them *now* for 7 cents; to-morrow they may be 5, but they may also be 8 or even 9." This little transaction has tended to give me more charity for people who change prices often. In fact, it gave me my first insight into this matter of fluctuations of the market, and it led me to see that it is proper to change the price not only daily, but, under some conditions, and under some circumstances, hourly. When the prices were low, it was really pleasant to see people coming with all sorts of utensils for strawberries; and I believe now that I enjoyed selling them as much (or even more) at 5 cents as I did selling them at 15. All that prevented me from being pleased and happy on the "down grade" was because I hadn't got enough of the text, at the head of this little sermon, in my heart—"Thou shalt love thy neighbor." And I confess that, when prices began to go up, and the children and some poor people who could afford them at 5 cents, but could not at 10 or 15, I began to feel sad for *their* sakes. My friend, when your neighbor's interest is so much in your heart that you *forget self*, and rejoice or feel sad at *his* loss or gain, you are getting pretty near to the kingdom.

Well, we got on swimmingly, and I enjoyed harvesting the berries very much. I enjoyed this matter of demand and supply, and fluctuations in the prices, and especially the positive proof that Medina could not only take care of 15 bushels of strawberries a day, but perhaps twice or three times that amount, until Saturday night came. We had had some little experience with Saturday night, but not very much. The weather was favorable, and, oh how the berries did ripen! Before we got through the patch once they were riper where we commenced than they had been when we started. Some of the boys talked toward night of picking no more if I could not sell them; but I told them that the berries must be picked, and that they must be sold or given away. The wagon went all over town, and visited every customer of ours; but after the men returned late in the evening, there were four or five bushels of berries yet to be disposed of. As our baskets all became full, the pint boxes full of berries were scattered everywhere along the rows, and little patches here and there were seen in groups up by the fence. In fact, bright, beautiful luscious strawberries stared at us everywhere. There had been such a hurry to get them picked before night, that they were set around everywhere, and nobody knew what was to be done with them. There was some talk of carrying the pint boxes by hand, because the *baskets* were all full; but I suggested setting them on one of the shutters of the hot-beds. Finally Mr. Wright, the printer, got hold of some of the shallow trays we use for celery-plants. To refresh your memory I will give you a picture of one.

Each tray holds 24 pints. They were wheeled up to the factory on our Daisy wheelbarrows, and then they were set along the front of the door, on a stand that was

*At one time, to fill our contracts we tried to buy some berries of a neighbor; but the best price he could make to us was 6 cts., therefore we should be obliged to pay 6 and sell for 5, because we were so thoughtless as to make a contract beforehand, for the delivery of berries the next day.



THE TRAYS WE USED TO HOLD OUR PINT BOXES OF STRAWBERRIES.

made to exhibit new goods. They made an impressive show, I tell you. I proposed to sell what I could, to the people who passed by. Ours is a public highway, and on Saturday night there were more or less vehicles passing almost constantly. My wife suggested that we should mark in plain letters, on a nice clean smooth board,

FRESH STRAWBERRIES, ONLY 5 CENTS A QUART.

Ernest got a board and did the marking, and I commenced calling the attention of the passers-by, when they did not seem to notice the berries, myself. Somewhat to my surprise a sale was made to the occupants of almost every vehicle. Pretty soon it became too dark to see, but there were bushels of berries remaining. At this juncture Mr. Weed brought a large lamp from the factory, and set it near by the bulletin-board. Well, before ten o'clock every berry was sold. The people went away happy, and I felt happy, even if the coppers and nickels in my pocket did pull down rather uncomfortably. The coppers and nickels would keep over Sunday, without spoiling, even though the weather were hot and damp, while the strawberries—well, I felt sure they would do good, and make people happy, at only 5 cts. a quart.

Now, then, friends, I have told you this little story because I think likely it will be helpful to some of you in selling your products. A plain bulletin-board, a good display of what you have for sale, assisted by a lamp, if it is a still evening, after dark, makes a very pretty advertisement. Back of it all, the owner must stand, with *love to his neighbor*, in his heart. All the rest will take care of itself. Now, whenever you are inclined to murmur or complain—when you say farming does not pay, or the special occupation whereunto God seems to have called you does not pay, please have confidence enough in your old friend A. I. Root to believe he is right when he says the trouble is not in *farming*; it is not in your *chosen occupation*, and it is not with your *neighbors*—the neighbors God has given you, but it is because in your own heart you do not “*love your neighbor*.”

P. S.—Constance suggests that it is not dignified, and she does not think it is the thing to do, to speak to people who are riding by, no matter whether you know them or not, and ask them if they don't want to buy some strawberries. She thinks it is too much like peddling. I told her that I should never object to seeing peddlers, provided they carried some product of the soil that they had raised themselves. Some of the friends laughed at my zeal in disposing of the berries, but none of them seemed to be displeased. Toward the last, a buggy went by in the dark. I could not see very distinctly, but after he had replied very sober-

ly and sedately that he did not think they could very *well* use any more strawberries just then, we found out that it was my son-in-law, *Mr. Calvert*. This raised a pretty big laugh from the bystanders; but I was so very enthusiastic in disposing of the great lot of berries, that I proposed to treat friends and foes (that is, if *I have any* foes in Medina County) all alike.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

TOO MANY STRAWBERRIES, SMALL FRUITS, ETC.; FRIEND TERRY GIVES US A LITTLE FRIENDLY TALK IN THE MATTER.

MR. ROOT:—In GLEANINGS for June I spoke of the overproduction of potatoes, and the prospect of an overcrop of strawberries. Now, do you know I was almost provoked with you for not making use of such a good opportunity to preach a little sermon on my special hobby? For forty years to come there will be no danger of overproduction among the farmers (and many bee-keepers that I have met can be added in), in the line of growing abundance of strawberries and other fine small fruits for their own home use, and I know of no work in the world that they ought to be more happy while doing. I am getting more and more in love with my fruit-garden, as well as with the delicious fruit we are getting. Would that I could take every reader of GLEANINGS, who is behind at all in this respect, by the hand and have a full hour's talk with him while walking among the loaded bushes and vines in my garden or yours! Wouldn't I talk my best at him? Wouldn't I keep his mouth full of great Jessie, Bubach, and Cumberland berries? Then I would try to interest him in the growing of vines. I would show him single leaves 5 inches long, one of which would cover a pint bowl, on plants set this spring; then take him among the raspberries, and show him bushes, set only a little over a year, loaded with berries.

Some farmers have a little bed of strawberries, perhaps two or three square rods, from which they get just a taste of this great luxury. That wouldn't suit me at all. I would set out ten times as many, with an ordinary-sized family, and tend them in long rows, with a horse, and have berries by the bushel, as free to children and all as water, for a month if possible. We have now a bushel a day of splendid fruit, and we eat and can every one of them. (No, I took much delight in carrying a peck to a neighbor, yesterday, who doesn't have any.) Extravagant? What! when I and the family did all the work on them, and if they were together in solid compass (they are between raspberry rows you know) they would hardly occupy more than 15 rods of earth? I don't think so.

I saw Mr. Fenn at the Horticultural Society in Tallmadge, the other day, and he told me about your rows of strawberries. I do wish I could see them. Won't you tell us how far apart in the row you set the plants, and when you get through, about the average yield per hill?

The Bubach is our grandest berry. The Haverland is not so large, but extra good size, and the berries just lie in piles. The flavor is not quite perfect, to my taste; but with 13 kinds, I may be get-

ting rather particular. There is no berry on our grounds with any nicer flavor than the old Charles Downing; but they are light yielders, and easily hurt by the frost, like the Sharpless. The Jessie is good, and a fair yielder, but not up to the Bubach.

Do you know I had to laugh when I read in GLEANINGS that you were not quite certain that farmers could not afford to grow potatoes in a small way where they hadn't the machinery and aids of the large grower? What do you suppose I had been doing that morning? Why, following Breed's weeder, as a new tool is called, over seven acres of potatoes. It was drawn by one horse, and could hardly be called work for him or myself. Now, what did it do? Why, in going once through the field I stirred all the soil that I could with a one-horse cultivator in going twice, and at the same time moved every bit of soil in and around the hills—hoed them. In the afternoon, wife and I took a ride. We saw a man with perhaps two acres of potatoes, hoeing them slowly by hand, after having cultivated them. We calculated that, at the rate he was working, it would take him one day to hoe half an acre (in drills), or over 15 days to do the work I had done in the forenoon. Which can ride out the most? which can get time to "fuss" with berries best? Which can get the most time to do his work promptly and as well as he knows how, and can live and respect his calling instead of being a drudge?

But, enough. You know I love to accomplish something when I work. Don't fear the overproduction of potatoes. There are two sides to this. When farmers get large prices, how many thousands of poor people have to pay altogether too much? Welcome cheaper production and only fair living prices for farmers, for the sake of the great number of poor people who will be helped. With our machinery we made money last year on potatoes—did well enough. It hurt me to sell potatoes to men who had hard work to make a very bare living, for 75 cts. to \$1.00 a bushel in 1881 and 1887. To be sure, it was market price, but—well, I found a way to ease my conscience, sometimes, when selling directly to individuals.

Dr. Talmage says the Almighty will smite this people if they do not stop inventing machinery to take work from poor people. For himself, he says, if I remember correctly, that he hopes there will not be another tool invented in 500 years. But he is all wrong for once. His head is out of level. Flour and potatoes are cheaper to-day for the poor man to eat than they would be without the binder and the potato-planter; and there is work enough for all, and better wages, than in anti-machinery days. Then see the great saving to the farmers' wives in the line of less help to board, less drudgery and tavern life, and the nearer approach to a perfect home. See how the farmer can now accomplish much without slavish toil. Welcome to labor-saving machinery, I say. T. B. TERRY.

Hudson, Ohio.

Well, I am very glad indeed, old friend, to know that our ideas have been so much in the same line. You will, of course, see what I have said under the head of Our Neighbors, in this issue. I do not know that I quite get your thought in regard to farmers raising small fruits. Where they raise strawberries for sale, I think they might devote more ground to this one crop

than is profitable for *that locality*. Last season we had so many Alaska peas (and we got them on the market before anybody else had any also) that they could not be sold without running the price down to a point that did not pay expenses; and even when we loaded the wagon and sent them off eight or ten miles to adjoining towns, the whole crop could not be sold at a profit. I made a blunder by planting *largely all at one time*. This year I blundered the other way, because I did not plant enough. For three weeks we have been getting 50 cents a peck for every pea as it ripened, and customers quarrel as to who shall have them, even then. We had only about half enough. The remedy is to make successive plantings every week or ten days, and be sure to have enough, and not very many more than enough. We can not do this, however, with strawberries. If you mean, however, that no farmer or anybody else who has a little patch of ground can make a mistake by planting enough to give his own family a great abundance of strawberries, then I *heartily* agree with you. Almost every spring my health begins to fail by care and overwork, just a little before strawberry time, and for several years I have been looking forward to fresh strawberries as a sure means of "fetching" me up. This year I was in such haste to receive the benefit of the "strawberry tonic" that I ate a little too freely of them when they *first* ripened. I began to feel troubled for fear strawberries would not work *this* season. I soon found, however, that it was because dame Nature did not want the new medicine too abruptly. By increasing the dose daily for a few days, I *soon* found that I could eat two large saucerfuls at a meal, and ever so many more between meals, and grow fat and happy on them. Of all the different "cures" that have been invented in times past, give me the strawberry cure. Well, now, there is but little question but that other people will be benefited just as I am benefited. But they can not very well afford the expense unless the berries are afforded cheaply; therefore I am glad, as you are, when strawberries (and potatoes) are offered at very low prices. But I still think that, where one wishes to get the very most benefit from strawberries, he should raise them himself, not only that he may enjoy seeing them grow, but that he may feel that the supply is unlimited—that he may eat just as many as he has any inclination to, without having his conscience trouble him because he is extravagant.

You speak about canning them. My wife has often urged me to eat largely of *canned* strawberries, to see if they would not bring me up as well as the fresh ones do. They have never yet filled the bill very well, therefore we have not been in the habit of canning very many. Our patch of Jessie strawberries, mentioned by my cousin, D. E. Fenn, are planted just 3 feet apart, after digging our early potatoes, as I have described. They are 10 inches apart in the row. We have not kept account of the product, but I should say that they average perhaps half a pint to each plant. Next sea-

son the same plantation will doubtless give a much larger crop; but I seriously doubt whether the Jessie or the Sharpless either will give as much fruit per plant as the Crescent and Wilson, and perhaps some others. Our objection to the Crescent is the small size; but still a great many of our customers this summer decidedly prefer the small berries to the great large ones. Some of them will not have the large ones, as they say they are tasteless, etc. The Bubach is certainly a massive berry. We, like yourself, have single leaves that would cover a pint bowl, and the berries are monsters. But they are all gone after one or two pickings, while the Crescent, with its great clusters of small berries, still keeps the pickers busy. Sometimes I think there is no better berry, all things considered, than the old Wilson. Then, again, I am inclined to favor the Crescent. Finally I decide that no berry-patch is complete without half a dozen, or, better still, a dozen, of the popular kinds. The Jessie is valuable because it is so early; and the Jersey Queen, because it is so late; besides, the Jersey Queen is one of the handsomest and best berries that we have on our grounds. It is not as strong a grower as the Sharpless and Jessie, however, and it doesn't bear any thing near as many berries as the Crescent. I am astonished to hear that Talmage ever said or wrote any such folly. Our proof-reader says he thinks there must be some mistake about it. To intimate that man's inventive faculties are not a wonderful gift directly from the Almighty, seems to me, savors of infidelity. Farmers complain that wages are so high, and produce so low, that they can not keep on farming. Now, if this be true, the laboring classes have been benefited in both directions. Amen to your concluding sentence!

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

MANUM'S MODIFIED SWARMING-DEVICE.

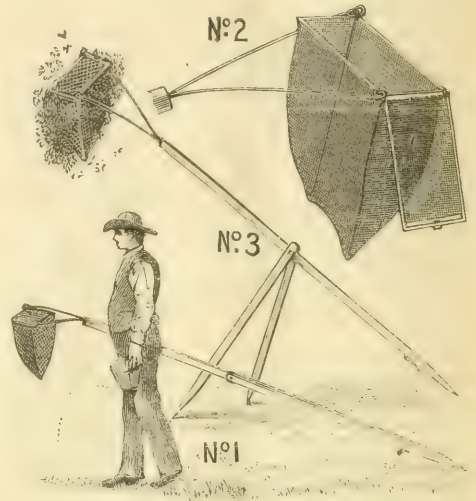
IT will be remembered that our friend A. E. Manum clips all his queens' wings. As some of our customers want their queens clipped and others do not, we practice no clipping, leaving the purchaser to follow his own option. Our queens, unless prevented by perforated zinc, always accompany the swarm. On page 542, July 1, 1888, I mentioned a swarming-device modified from A. E. Manum's implement, which has given us most excellent satisfaction. Our device differs from friend Manum's in that we use a larger wire-cloth cage. His will hold perhaps a quart of bees, while ours will hold several. As it was late in the season we made no engraving of it then.

While Manum's arrangement is better adapted for those who clip their queens, ours is more suited for those who practice no clipping. Fig. 2 represents the wire-cloth cage or basket; Fig. 3, the device in position, receiving the bees as they cluster on the outside of the cage. Fig. 1 shows the

bees after they have clustered, and the apiarist in the act of walking off to the hive.

METHOD OF CAPTURING SWARMS.

Instead of looking for the clipped queen as soon as the swarm issues, we wait until it begins to cluster. As soon as a cluster is about half completed, we run the basket up to and around the cone of bees. An assistant, if present, gives the limb a jar, so as to disengage the bees into the basket. In case no one is ready to assist, a sliding movement will precipitate the cluster into the wire-cloth cage, when it is quickly lowered.



MANUM'S SWARMING ARRANGEMENT AS MODIFIED BY THE FOLKS AT THE HOME OF THE HONEY-BEES.

This operation, in passing down through the limbs, usually will catch the wire-cloth lid, and close it with a slam. In case it is not closed, the apiarist steps forward and does it himself. Half or two-thirds of the bees are generally confined. In all probability the queen is there also. As the bees can not get out, those still flying in the air will very readily cluster on the wire cloth, surrounding the majority of their companions inside. To make this more expeditious, the tripod is adjusted, and the cage is suspended in the air, as shown in Fig. 3, right where the bees are flying thickest. In two or three minutes the remainder of the bees will be clustered on the outside. At this stage of the proceeding the apiarist comes forward, folds the two short legs against the pole, grasps it at its center of gravity (see Fig. 1), and walks off to the hive, which he has previously prepared. The wire fork is made of steel, and is light and springy. The walking of the apiarist has no tendency then to jar the bees off from the basket.

One of the special features of the Manum arrangement is, that the basket can be adjusted to almost any position, all the way from 2 to 10 feet from the ground. All that is necessary is to spread the tripod legs, catch them into the ground, and leave them standing. In the mean time, if the hive is

not prepared, the apiarist has ample time to get it ready. After this he can return to the swarm just now clustered. Most of the devices require to be held until the cluster has settled. It is a tedious job to hold a pole at arms' length, with face upturned. If the swarm clusters very high, some other arrangement, perhaps, would be better than the Manum; but for low shrubbery it is just the thing. The other special feature of the device is, that after you have gotten about half or two-thirds of the bees into the basket, they can not escape and seek their original point of attachment.

HAULING BEES WITH COLTS—A WARNING.

During the past week I have had some experience, of a kind of which Josh Billings said, "The tushum is ruther hi." We have been moving bees with a colt, and very likely you will forecast the result before I get through. Old horsemen tell us that colts should be hitched in the stable, or to the side of a barn or high board fence, or at least something they can not get their feet through or climb over, or tangle themselves up in. My colt Billy, referred to before in this department, had been making trips to the basswood orchard nearly every day. A large portion of this apiary has been devoted to filling orders for bees and queens by the pound, nucleus, and colony. At the orchard there was neither a shed, side of a barn, nor high board fence. The only available thing was a small elm-tree, about four inches in diameter. The ground was pretty level at this spot; and although it was not the best place in the world to hitch a colt, we thought we would "risk it" until we could fit up a hitching-post, or, better, a shed after the rush of the season. Billy stamped the ground considerably around that tree, and, colt-like, champed his bits.

One day we went down after about \$75.00 worth of bees, which were to go by express in the morning. As the aforesaid elm-tree was inconveniently situated for the market-wagon, we hitched to a fence—one that was strong. We had got our bees into the shipping-cages, and were loading them on the wagon. Billy became impatient, and wanted to go home before we got fairly loaded; and before we knew it he had somehow got his foot through the fence and into a gate. With \$75.00 worth of bees in the wagon, at May prices, and the horse tangled as he was, we rather expected a fracas. A few soothing words quieted the horse so that we could untangle him, and we were soon on our way, rejoicing that we had got out of our trouble so luckily.

About a month elapsed, and Billy in the mean time was learning to stand like an old horse. One afternoon, as usual, Mr. Spafford took Billy and the light wagon, your humble servant remaining at his desk. This time Mr. S. hitched to the elm-tree, and then went about his work. He had nearly finished his last hive when he heard a little noise in the direction of the horse. Rushing out, he noticed that the animal was behaving in a very unusual manner. Well, to make a long story short, Billy had caught the right thill in the tree. He then stepped to one side, and broke one end of the shaft

diagonally off, perhaps a foot from the end. The splintered part evidently struck just back of his fore-leg, and gouted him a little. As you know, a horse, when he is pricked by any thing, never moves away from the irritating object, but, on the contrary, will push the sharp point into himself. Billy pushed the thill into himself back of his fore-leg, reeled sidewise a little, and, with the point sticking in his vitals, again broke the thill off lower down. He then fell over one end of the thill, striking the ground, and the other end plunging deeply into his heart. Before Mr. Spafford could reach him and be of very much assistance, a valuable horse was killed—one that could travel fourteen miles an hour, and one for which I had, just prior to its death, had frequent offers. Whether an unlucky bee had stung the horse, and so been the direct cause of the disaster, we shall never know. I do know that I have lost a valuable horse, and a great pet, of which my wife was exceedingly fond.

Perhaps some of the experienced horse-breeders who read this will say, "Why did you not unhitch?" For the simple reason that we had tried it once or twice, and Billy had wound himself around the tree until he did not have any strap at all. Well, this is mishap No. 2.

As our three heavy draft horses were busy, we next took Meg. As she had run away several times, Mr. Spafford, after an experience with her once, feared to take her again. No other horse being available, Neighbor H. kindly offered to loan us his Bobby pony. This likewise was a colt. The hitching-place was made more substantial, and the horse was unhitched from the thills. Every thing went well until they were well started toward home with the bees. Like a good many other colts, he did some unexpected things. Why, what do you suppose it was? He simply fell down and broke both thills. There were \$25.00 worth of bees in the buggy. Very fortunately a farmer near at hand came to the rescue immediately. Mr. Spafford held the colt down while his companion unhitched. In the mean time an angry bee had the meanness to come and sting this poor colt on the end of its nose. He lunged a little, but by good management the colt was safely disengaged from the thills, without any sliver sticking him in his side, and another serious mishap. It was then raining, and the roads were getting slippery. The thills were wrapped around with straps, the horse re hitched, and Mr. Spafford started on his venturesome journey again. When he arrived at the factory I saw that something had gone wrong again; and although Mr. S. is an experienced horseman, and a man who has broken colts, and who has handled some very vicious animals, there was a care-worn expression on his face. As I stepped up to the horse, he begged to be excused from going after bees any more, with colts. I assured him that he shouldn't.

It is said, that it never rains but it pours—misfortunes never come singly. I do know that they sometimes come singly, but I am sure, also, that they often come in

pairs. I mention this misfortune that it may be a warning to others who are under the necessity of moving bees. It was all on account of our busy season, the rush of orders, and scarcity of help, that we took these little risks. We thought when the busy season was over that we would erect a substantial shed and a suitable hatching-place. But misfortunes would not wait. The moral is, where property is involved, do not run risks, where a few dollars in a shed or in a hitching-post will save a good many dollars in an accident.

GETTING BEES STARTED TO WORK IN SECTIONS.

ALSO USING ONE OR MORE PARTLY FINISHED SECTIONS AS A STARTER.

I LIKE Doolittle's article, and the comments thereon, on page 474. For the benefit of the younger members, let me repeat what I have already said. I have never had any trouble to get bees to work in sections by simply placing in the center of the super a section upon which the bees had previously worked. It does not matter whether the honey has been emptied out or not, only so that previously it has been partly filled with honey. The severest test I ever gave to this plan was last year and the year before. In each super put on, I placed in the middle a section that had been filled or partly filled with honey, and this honey had all been emptied out. Every colony which had any honey to spare from the brood-chamber commenced promptly in this section, filled it with honey, and commenced putting honey in the adjoining sections. These colonies were very few in number. The others, which had no more honey than was needed in the brood-chamber, as well as many which had not enough for the brood-chamber, commenced work in the "bait" section, generally filling and sealing it. I had many supers with the "bait" section filled and sealed, and not another section in the super worked on. So I feel pretty safe in saying that, with such a bait section in the super, my bees will work as readily as I want them to, in the supers. The bait sections are likely to be second class, but there need be only one for each colony, not one for each super.

SHALL UNFINISHED SECTIONS BE AGAIN USED?

Since writing the above I have read friend Green's article, on page 449. I think the strongest discussion ever had on the matter of using unfinished sections was at the National Convention, at Chicago; and, if I remember correctly, it was a pretty one-sided affair. I believe I gave no opinion, unless it was to say that sections *partly* filled at the time of putting on, were sometimes watery after being filled. But I've asked myself some questions about it since, one of which was this: If bees will commence and finish a section of foundation quicker than one filled with comb, how does it come that so much more extracted honey can be produced than comb, especially by those who allow the honey to be sealed over before extracting? The Dadants, it is well known, do no extracting till the close of the harvest, leaving the combs to be sealed over; and on page 429 of that excellent book, the Revised Langstroth, they say: "If we give to bees empty combs, to store their honey, we shall find, by comparing the products of colonies who have to

build their combs, with those of colonies who always have empty combs to fill, that these last produce at least twice as much as the others." Now, if they produce twice as much in the course of the season, can they not produce it more rapidly? However that may be, there seems to be a pretty plain statement that, in the course of the season, twice as many pounds of honey will be stored in ready-built combs as in foundation. Now, if that be true of full-sized combs—although the Dadants do not use full-sized combs for extracting—why is it not true of combs of any size, even down to $4\frac{1}{4} \times 4\frac{1}{4}$? And if these sections can be sold for only two cents less than the best, they are still very profitable, if even a fourth more honey can be produced in them. I confess that I have been quite puzzled to reconcile these apparently contradictory statements and opinions. Without being at all sure of my ground, I may be allowed to give a possible explanation. Remember that many, like friend J. A. Green, have held the view that a section used by the bees last year will not be filled as soon as one containing only foundation, and that it is not profitable to use such. One year I used a number of sections partly filled, left over from the previous year. I can not now tell whether they were filled more or less promptly than the others, but they were filled and stored for some time with the others. Before very long I found these sections, which had been left over from the previous year, becoming watery, the honey oozing through the capping, while the sections built on foundation were all right. Now, in this case is it not probable that the honey left over in these sections was unripe to begin with; and, after being kept over the winter, had soured at least a trifle? And is it unreasonable to suppose that the bees would be slower in filling such sections than in filling those furnished with foundation only? I remember, that at that same convention at Chicago great stress was laid upon the importance of having all vessels, used to contain extracted honey, very clean—the least remains of granulated honey being enough to spoil a lot of fresh honey. Now, is it not possible that those who have found unfinished sections so objectionable have used those containing some old honey, at least as much as the extractor would leave in them? The sections I use for bait are treated in this way:

Those containing much honey are extracted the previous fall, and all are cleaned out thoroughly by the bees, a pile of supers being left where the bees can rob them; the entrance, however, being *large enough for only a single bee*. I could not be induced, I think, to dispense with such bait, and I wish friend Green and others would try it and report.

Let me suggest how to settle pretty conclusively whether unfinished sections or foundation will be finished first. Take such bait sections as I have described, the last vestige of honey cleaned out of them by the bees—mind you, this must be done at a time when bees will rob, or they are not likely to clean the sections thoroughly—and put one in the middle of each super. Now, don't wait till the whole super is finished, but watch from time to time and see what is the *first* section finished. Another good way is this:

Fill a super alternately with sections of comb and foundation, then keep close watch and find the time when *all* the sections of one kind are finished, but not the others, and see which kind it is. Better

not consider the outside row on each side, as local causes may affect them.

C. C. MILLER.

Marengo, Ill.

Friend M., I have observed almost every thing you mention. I know the bees start on this one section, and sometimes fill it before they commence on the foundation; but for all that, when I gave the bees a whole set of sections, built out the previous year, it did not get along as well as others that had only a section or two to start them, the rest being filled with foundation. Some of the honey might have been as nice as that built on foundation, but it certainly was not as nice on an average, and a great deal of it was watery, and some of the honey was candied, while that built on my foundation was not candied at all. This is a matter of considerable importance, and I hope we may have more testimonies like yours, from actual experience.

THAT STOVEPIPE SMOKER AND BRUSH-BROOM.

W. L. COGGSHALL EXPLAINS.

AS you desire me to explain about the brush-broom and stovepipe smoker that appear in my photograph, page 448, I will add that the smoker is made of sheet-iron, 8 inches deep, 5 inches in diameter, with a slide cover hinged on a rivet through the handle. The cover is designed to smother down the fire when burning too fast, or when not in use. There is a hole cut in the side, and strips are riveted on each side of the hole, and a slide shoves down over the hole after the fire is started. I usually leave a little draft so it will keep burning. A handle is riveted opposite the draft-hole, and is made out of half-inch and half-round iron. A half-inch hook is made on the end of a 1½-inch projecting rod at the top of the smoker, to hook over the edge of the hive. Two braces are fastened to the bottom of the smoker, to hold it away from the hive and keep it from wobbling around or burning the hive.

For fuel, I use chips or cobs; hang it on the windward side of the hive after removing the cover, and I will guarantee, if you have a good smoke going, that the bees won't bother you. You can beat the smoke down into the hive with the brush a little. It is designed for those who extract honey. I use it a great deal for taking off section cases. The brush is made from select and fine broom-corn, 9 inches wide at the brush end, so it will clean a Langstroth comb at one or two sweeps, after the bees are properly shaken off the comb. An eye-screw is put in the end, to which is attached a string, and which should be long enough to go over the head and shoulder, and hang right by your hand, and then you always know right where it is, and you do not have to look after it at all.

W. L. COGGSHALL.

West Groton, N. Y., June 5, 1889.

Very good, friend C.; but we want to know what those brooms cost. What do you sell them for at retail? how much postage do they take, and what will you take to furnish 100 for? You need not be afraid of advertising in the reading-columns. I always enjoy the fun of advertising something real good, when furnished by a good man.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, JULY 1, 1889.

Teach me to do thy will, for thou art my God; thy Spirit is good; lead me unto the land of uprightness. Ps 143:10

A LITTLE ONE GONE.

THE following card at hand will explain itself:

We have lost our darling little baby girl. She was 17 months old. She died last night. We bury her to-day.

Yours in grief,
Hamilton, Ill., June 17, 1889. C. P. DADANT.

We extend our sympathy to the Dadant family.

A NEW FRENCH BEE-BOOK.

"THE Management of the Apiary" is the title of a new work on apiculture, by Mr. Ed. Bertrand, of Nyon, Switzerland. The book has 178 pages, printed in the very best style, on calendered paper, and is sold where published at half a franc, or 10 cts. The work is a reprint of some articles which appeared in the author's *Revue Internationale* in 1882 and '83, originally written for beginners. The work is divided essentially into 12 parts, each part devoted to a particular month, and all profusely illustrated and copiously indexed. In the back part of the book we find a minute description of every individual part of the Dadant, Layens, and Burki-Jeker hives, which seem to be the three principal types in use in France and Switzerland. These descriptions are accompanied with such accurate illustrations as make the hive itself useless if we simply desire to understand its construction. The work will be found invaluable to those who can read and understand the French language.

THE ARKADELPHIA BEE-LAWSUIT.

OUR readers will remember that the bees of Mr. Z. A. Clark, of Arkadelphia, Ark., some time ago were declared a nuisance by the city council, and that Mr. Clark was warned to remove his bees, or pay a fine of not less than \$5.00 nor more than \$25.00, or go to jail. Mr. Clark, feeling that very great injustice was being done, rather than go to the expense of moving his bees, took the penalty. He finally, however, removed his bees outside of the city limits. The aid of the Bee-keepers' Union was at once solicited, and the case was tried in the circuit court, where it was decided that "the city ordinance was illegal and void;" that "keeping bees is not a nuisance." The case was carried to the supreme court, and brother Newman just announces that the Union has, after an immense amount of worry and expense, again *won* the suit, and that a *grand precedent* has been established. In no single instance has the Union been defeated; and it begins to seem now that, in view of its past victories, to enlist its aid means success every time. It would be a terribly bad thing to have bees declared a nuisance by a supreme court, and perhaps there are but few bee-keepers who realize what the decision in the case of Mr. Z. A. Clark means.

Mr. Newman, the manager of the Bee-keepers' Union, informs us that \$1000 will be needed to prosecute the cases now on hand. Remember, you can not expect assistance from the Union unless you are a member. The fees are \$1.00 per annum. Perhaps we should say here, that we are not in favor of trades-unions in general; but the Bee-keepers' Union, under its present able management we are sure has been productive of good. After we have a few more precedents established like the Arkadelphia case, outside parties will be slow to declare bees a nuisance.

A NEW SOURCE OF HONEY IN TEXAS; HONEY COMING BY THE TON, EQUAL TO ANY THING PRODUCED IN THE WORLD.

Mr. Root: I send you a sample of guajilla honey to day. I raised eight or ten tons of it this season. It weighs full 12 pounds to the gallon. Most of the honey we raise in this country is as good as this sample. I have had many intelligent men, who have been used to white-clover honey all their lives, tell me this was the prettiest and best honey they ever saw.

Your criticisms on Southern honey are generally unfavorable; but I am satisfied that, if you had enough of our catclaw honey to use one month, you would pronounce it equal to your best white-clover. D. M. EDWARDS.
Uvalde, Texas, June 24, 1889.

Friend E., we congratulate you people of Texas on having produced not only as handsome if not the handsomest honey ever gathered from any source, but some equal in flavor and every thing else that could be asked in the way of honey—not only white clover but even the celebrated California sage. By all means, tell us more about this guajilla. Is it a plant or tree, and why haven't we had some of the honey before? It seems as if this might start a new era in bee-keeping, especially if the plant or tree can be propagated. Tell us what you will take for the honey by the ton. We anxiously await further particulars.

THE A B C OF CHEESE-MAKING.

THE above is the title of a very pretty little pamphlet by J. H. Monrad, of Winnetka, Ill. The price of the work is 25 cents. It contains 36 pages of matter devoted directly to the cheese-making business, and almost every page has more or less pictures on it. It tells all about the implements used in cheese-making; tells how to make a home-made cheese-press at a very little expense, and discusses the best kinds, if you see fit to buy one. I do love to see these industrial books, and I believe I like them all the better where they are written by young farmers who have a love for the line of work they have chosen. The whole book is written in a very happy vein. Since milk and honey are so often spoken of in the pages of Holy Writ, I have often felt a good deal of interest in the cheese and dairy business. When I eat strawberries I always want plenty of milk. Of course, cream is better, especially where you have a Jersey cow; and if there is any thing that gives a relish to a nice piece of cheese, it is the very same strawberries we have been talking so much about in this issue. Now, even if you are not a cheese-maker, I think you would enjoy reading friend Monrad's A B C book. You can order it of him direct, or we can furnish it to you for 25 cts. postpaid. In the back part of this book is given a list of the dairy literature of the world. There are nine periodicals devoted to the dairy business, and about a dozen books. Two of the journals are German, one French, and six English; of twelve books devoted to dairying, six are English, two Danish, three German, and one French. I think, friends, it is good to look over the

fence occasionally, and see what our neighbors are doing.

BUSH LIMA BEANS AT THIS DATE, JUNE 29.

I CONFESS I would much rather not say any thing about the bush lima beans, or, rather, say as little as possible, in a general way; but I guess I had better own up. After investing so much money in the seeds it occurred to me that they must not only have the best ground and best planting, but they must have the very best part of the season. As the lima beans are very apt to be nipped by the frost at both ends of the season, it requires considerable judgment to decide when to plant. During the last of May, however, we were having such fine nice weather that I decided that then was just the right time to plant them. The extra early limas were put in—King of the Garden limas—and then a few of the Henderson bush limas, also a few of the Kumerle. A cold spell came on, however, and every thing stopped growing. I waited a week or more until the cold spell seemed to be over; then, as it was getting late, I put in the rest of all of them, except a few of Henderson's, because quite a few orders were coming in. You know how it has been for bee men and everybody else. We had a constant succession of cold rains. The pole limas, however, came up pretty fairly, and are doing nicely. About half of Henderson's germinated, and not one-fourth of the Kumerle. Worse still, more than half of Henderson's and the Kumerles that did start were feeble and sickly; and it is a question now whether they will ever produce any beans at all. By the middle of June, when we were pretty sure that no more of Henderson's would be called for, the rest of them were planted. As we then had pretty fair weather, and not too much cold rain, every bean came up, strong and healthy. Now, this proves, I think, that the bush lima beans, all of them, are considerably more tender and more tropical in their nature than the ordinary pole lima beans. They must have warmer weather. I think that Henderson suggests they had better not be planted until after the pole limas. I do not believe that I have a whole dozen good strong thrifty Kumerle plants growing, out of the 150 seeds that cost me over 50 cts. a seed. There may be a dozen or more sickly plants that may or may not amount to something. The Minnesota bush lima bean from Northrup, Braslin, Goodwin & Co., planted right along with the rest, came up strong and thrifty, and every bean grew. Just now they are far ahead of all the limas in rank growth; but they have no appearance in foliage of lima beans at all; and the largest part of them have already sent out strong shoots to climb poles. Present appearances seem to indicate they are simply a rank-growing, large yellow bean. There have been several complaints that the Henderson bush lima bean did not germinate freely. The above will explain the reason for it, probably. I would send you more, if I had them; but as I haven't, we will give a good big package for next season (if you will send in your name) to all those who failed with the other package this year.

OUR BERRY CROP.

WE have sold over 100 bushels of strawberries, and we shall probably have twice as many raspberries.

WE have at this date, 8821 subscribers.

SPECIAL NOTICES.

MANUM'S SWARMING DEVICE.

The swarming-device mentioned and described in the department of Recent Developments, elsewhere in this issue, we sell for 75 cts. each, or \$6.00 for ten. It weighs 9 lbs., and will hold a swarm suspended from the basket, anywhere from 2 to 10 feet from the ground.

SOUTHERN PRIZE TURNIP.

Well, friends, we now have a seven-top turnip that not only gives blossoms for the bees, and greens for early spring, but it also gives a nice turnip that will stand in the ground over winter—at least it did stand over such a winter as our last one, here in Ohio. We can furnish you the seed at the same price as our old seven top turnip; namely, 5 cts. per packet; 10 cts. per ounce, or 50 cts. per pound.

IGNOTUM TOMATO-PLANTS.

As we have several thousand of these on hand yet, we offer them, until the stock is exhausted, at the price of common varieties; namely, 10 cts. for 10; 75 cts. per 100, or \$6.00 per 1000. As the plants are quite large and strong, if wanted by mail they will be just double the above prices. If set out at once, they will give a fair crop of tomatoes in most localities, before frost. Livingston's Beauty, Mikado, and Dwarf Champion, will be furnished at just half the above prices.

POULTRY-NETTING FOR PEAVINES.

On page 510 of our last issue I stated that the poultry-netting that I used for our Alaska peas was $\frac{1}{2}$ -inch mesh. This was a mistake. I should have said 3 inches and No. 20 wire. But I made another mistake besides. Even the 3-inch mesh can not be sold for 50 cents for a bale of 150 feet. The regular price would be 67 cents, and 65 is about as low as we can figure it. When I give you any more figures on poultry-netting, I will try to submit them first to our purchasing clerk, Mr. Calvert. The 3 inch mesh is exactly as good as anything smaller. In fact, I prefer it because the mesh is large enough to reach through and pick the pea pods that are on the other side. I am not sure, in fact, but that a 4-inch mesh, if we could get it of fine enough wire, would have satisfied the peavines just as well as the 3 inch.

STRAWBERRIES.

In our issue for June 1 I told you we should probably have good strong plants ready for shipment as soon as that number was in the hands of the readers. Well, we had very nice-looking plants with great bushy tops; but the roots were so poorly developed that we have not even now filled our orders. The sooner you get strawberry-plants started, the better prospect for a crop next season. We shall plant out strawberries ourselves in July, August, September, October, November, and may be to some extent in December. But every month counts largely. The July-set plants will be away ahead of those set later, but our supply will probably be limited, although with the abundant rains they are doing an immense business in the way of making new plants. There is one of the new things in gardening, however, that we can furnish you in any quantity, and they are ready to ship now. It is the Egyptian, or winter onion. These this season have fully sustained their reputation. We have now had them three winters in the same spot of ground. We never knew an onion to be winter-killed, and they are such strong growers that they crowd out weeds and every thing else. Just get them started on some good ground, and you will always have early onions, almost with no attention whatever. Like the strawberries, the sooner you get them in the ground, the better. Wherever early peas or early beets, or any thing of the kind, comes off, just drop the seeds in a drill as you would peas, and in a very few days you will be delighted to note their wonderful growth. They not only bear sets on the tops, but they bear them out on the sides, and seem to do every thing that an onion can do to multiply and replenish the earth with onions. Price 10 cts. a pint; \$1.25 a peck, or \$4.00 a bushel. If wanted by mail, add 8 cts. per quart for postage.

AN ATTRACTION FOR FAIR-EXHIBITS.

Some of our old customers will remember that we used to advertise and furnish sections $4\frac{1}{4}$ in. square, with fancy-shaped center, such as stars, hearts, diamonds, etc. We have not made these of late, but we have had frequent calls for letters to be filled with comb honey by the bees, to form mottoes. We have never been well equipped for making these till now. We have a full set of pattern letters to work from, and they are of such a size that three will fill an 8-section wide frame, the openings forming the letters being about $7\frac{1}{2}$ in. high and 5 in. wide. M and W, of course, are wider, and I narrower. The letters are of the following pattern:

FAIR, 1889.

The price will be 10 cts. per letter or figure. With thin foundation inserted, 15 cts. per letter or figure. In ordering, if you will write the letters in the order you want them, we can make 3 letters in one piece, just right to slip into a wide frame. Or if you don't happen to have a wide frame, simply tack a bar on top, to suspend it from, and hang it in the hive without a frame around it. The 4 figures, 1889, will go in a frame. To make the letters, we simply tack two $\frac{3}{4}$ -inch boards together, mark the letter, and jig it out on a scroll-saw. To put in the foundation, separate the boards, lay a sheet between, and tack them together again. We make the letters large, because the bees will work in them more readily, and they are much more conspicuous when filled.

PREMIUM OFFER.

To those intending to make an exhibit, and who will agree to distribute judiciously the circulars we will send, we will furnish free one letter or figure for each dollar's worth of goods ordered, if the order amounts to \$4.00 or more. If foundation is inserted in each letter, we will furnish 2 letters for every \$3.00 worth of goods ordered.

JAPANESE * BUCKWHEAT.

500 BUSHELS SOLD ALREADY.



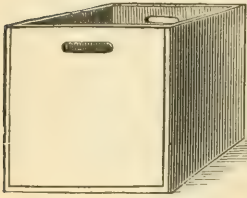
Now is just the time to sow it. We once harvested a crop of gray buckwheat seed that was sown Aug. 10. We do not advise such late seeding, as the frost is apt to catch it before it is ripe. From the 1st to the 20th of July is the best time to sow. We have plenty of seed yet, \$2.00 per bushel; \$1.25 per $\frac{1}{2}$ bushel; 75 cts. per peck; 10 cts. per lb.

A. I. ROOT, Medina, Ohio.

BUSHEL POTATO-BOXES.

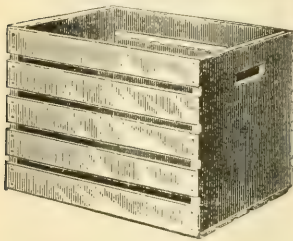
GALVANIZED & BOUND.

(TERRY'S).



These are made of basswood, bound with galvanized iron. The galvanized iron gives strength, and the basswood strength and lightness. These hold exactly a bushel when level full, and may be piled one on top of another. Although they are made especially for potatoes, they can be used for fruit, vegetables, picking up stones on the farm, and a thousand other purposes. When piled one above the other, they protect the contents from the sun and rain; and from their shape a great many more bushels can be set into a wagon than where baskets are used. They are also much more substantial than baskets.

Price, nailed up, 25 c each; 10, \$2.25; 100, \$20.00. In the flat, including nails and galvanized iron, \$1.75 for 10; 100, \$16.50; 1000, \$150.

SLATTED POTATO-BOX

As the pieces of which the above are made are mostly from remnants of basswood used in making sections, we can furnish them nailed up for 20 cents each; 10 for \$1.85; 100, \$16.00. Material in the flat, including nails, in packages of 12 boxes each, at

\$1.50 per package, and each package includes two of the twelve boxes nailed up, complete. Ten packages, 5 % off.

We have over 100 packages of the latter in stock ready to ship by return train. Please be careful in ordering to say whether you want the *galvanized bound* or the *slatted* boxes.

A. I. ROOT, Medina, Ohio.

FOX-HOUND PUPPIES FOR SALE.—First-class stock. Address C. A. WOOD, 13tfdb Tarrytown, Westchester Co., N. Y.

KIND WORDS FROM OUR CUSTOMERS.

I received the extractor June 12, in good condition, and am much pleased with it. J. M. SMITH. Perkiomenville, Pa., June 18, 1889.

The plants are received. I never saw such a nice way to pack them for shipping. We set them out, and it being wet they not even wilted. They were much larger than I expected to see, and good count; came quick, as I got them Thursday night, and sent Monday. R. GOLLING. Chase, Lake Co., Mich., June 1, 1889.

The tomato-plants you sent me came all right. It was a surprise for me to see that plants can be sent by mail so safe. They are as nice as if just taken out of the seed-bed. Just think of it! They were five inches larger than I thought they would be. Thanks for the nice packing. H. WILLING. Chesaning, Mich.

SWEET POTATO PLANTS AND THE DOVETAILED HIVE.

Those sweet-potato plants came through in the best shape of any I ever received from any grower—all alive, growing finely.

My Dovetailed hives came yesterday. I got them home last night. I could not go to bed till I had one all complete. I am well pleased with them. I think they are stronger than any other hive I ever saw, and I like them nearly as well as my own make, and perhaps I shall like them better after using them one summer. F. L. SNYDER.

Orion, Wis., June 13, 1889.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of ten years' careful breeding. Reduced prices: Warranted queens, each, 70c; 3 for \$2.00. Strong 3 L. frame nucleus, with warranted queen, \$2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me, I refer to A. I. Root, who has purchased of me, during past nine years, 45 queens.

Address **J. P. MOORE,** 13d Morgan, Pendleton Co., Ky.

JAS. F. WOOD, NORTH PRESCOTT, MASS.,

Will now ship by return mail, his warranted queens to any address, for 75 cts. each, or \$8.00 per dozen. Single queen to Canada, 85 cts. Being isolated from all black bees I am able to warrant every queen purely mated, and safe arrival guaranteed. Every queen is of good shape, and all have filled several combs with eggs before being shipped. I will replace every queen that hatches a black bee with a select tested queen, worth \$2.00.

If you want the best queens promptly, send me your orders. I am bound to suit you. Address as above. 13tfdb

FOR CASH.—Italian queens in July and August. One, untested, 60 cts.; per doz., \$6. One tested queen, \$1.25; per doz., \$12. Guarantee safe arrival. Address **D. E. ALDERMAN,** 13d Clinton, Sampson Co., North Carolina.

MY 21ST ANNUAL CATALOGUE OF ITALIAN, CYPRIAN, and HOLY-LAND BEES, QUEENS, NUCLEI, COLONIES, and SUPPLIES; also EGGS FOR HATCHING, can be had by sending me your address. **H. H. BROWN, Light Street, Col. Co., Pa.**

300 Tested and Untested Italian Queens From Imp. Mothers, by Return Mail.

Tested, 75c. Untested at \$6 per doz.; 50c each. No foul brood ever known here. Queens light.

Money-order office, New Iberia, La. 13-24db **J. W. K. SHAW & CO.**

TESTED Italian queens, \$1 each; untested, 75 cts., or three for \$2, by return mail. 13tfdb **I. R. GOOD, Nappanee, Elkhart Co., Ind.**

WANTED! At Plattsmouth, Nebraska, to Sell **3-Frame Nucleus Colonies Italian Bees with Queens, at \$2.50 Each.**

9tfdb J. M. YOUNG, Box 874, Plattsmouth, Neb.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS, TIN BUCKETS, BEE-HIVES, HONEY-SECTIONS, &c., &c. PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,** CINCINNATI, O. P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention *Gleanings*.) 1tfdb

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION. See advertisement in another column.

LITHOGRAPH LABELS

In 12 Colors, at \$2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring $2\frac{1}{4} \times 2\frac{1}{2}$. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; \$1.20 for 500; \$2.00 for 1000. **A. I. Root, Medina, O.**

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Carniolan Queens.

Importing and breeding this race exclusively since 1884; the demand for them has more than doubled each season. Send postal for circular, or \$1 for choice untested queen; \$5 per half-dozen; \$5 for Benton's best grade imported queen. 11ftdb

S. W. MORRISON, Oxford, Chester Co., Pa.
In responding to this advertisement mention GLEANINGS.

AMERICAN ALBINO ITALIAN QUEENS BY RETURN MAIL.

Tested, \$1.50; untested, 75 cents each. All our queens are reared this season under the natural-swarming impulse, from the best selected stock. Satisfaction guaranteed. Remit by registered letter, or money order, payable to

LEININGER BROTHERS,
Douglas, Putnam Co., Ohio.
In responding to this advertisement mention GLEANINGS.

IF YOU ARE IN WANT OF
BEES or BEE-KEEPERS' SUPPLIES,
Send for our New Catalogue.

OLIVER HOOVER & CO.,
Snydertown, Pa.
4ftdb
In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.
BUY YOUR SUPPLIES NEAR HOME AND
SAVE FREIGHT.

We carry a complete line of Hives, Sections, Smokers, Honey Extractors, etc. Our motto, good goods and low prices. Sections in large quantities, only \$3.25 per M. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,
Box 11. Higginsville, Mo.
3-14db
In responding to this advertisement mention GLEANINGS.

A STEP FORWARD TOWARDS SUCCESS!

After carefully studying the demand of consumers and dealers, and selecting of the many styles of packages for comb honey the very best and the most attractive, we have now prepared an improved paper carton combined with a comb-protector. Honey, put up in these packages, will be bought in preference to all others at highest market price. Our patent comb-protector will prevent leakage and soiling of sections. Comb honey can be easily and quickly put up in our cartons. These advantages and the small cost of our cartons and comb-protector will save labor, time, money, and honey. Strohmeyer's patent comb-protectors require $\frac{1}{8}$ inch of the inside height of crates. Price list and sample carton sent free on application.

F. G. STROHMEYER & CO.,
Wholesale Honey Merchants,
122 Water Street, New York.

Bees and Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column. THE D. A. JONES CO., BEETON, ONTARIO, CAN.
In responding to this advertisement mention GLEANINGS.

I AM AWAITING YOUR ORDER
FOR 3-FRAME NUCLEI.

Price, with untested queen, \$3.00. Best tested queen, \$4.00; 2 frame nuclei, 50 cts. less. Combs straight and true; all worker comb, and bees finest of Italians. One untested queen, \$1.00; 6 for \$5.00. Best tested, \$2.50 each.

JNO. A. THORNTON,
Exp. Office, Ursa, Ill. Lima, Ill.
Mention GLEANINGS. 12ftdb

LOOK HERE! Cheap Enough
At Last.

Full colonies of pure Italian bees in A. I. Root's Simplicity hive, only \$4.00 each. Now ready to ship. Frames, wired combs drawn from fdn., every thing first-class. Write for prices of Poland-China swine, White and Brown Leghorn chickens, and Mallard ducks. Eggs for hatching. Also white and black ferrets. Address N. A. KNAPP,
ROCHESTER, LORAIN CO., OHIO.
11ftdb

In responding to this advertisement mention GLEANINGS.

JAS. F. WOOD, NORTH PRESCOTT, MASS.,

Will now ship by return mail, his warranted queens to any address, for 75 cts. each, or \$8.00 per dozen. Single queen to Canada, 85 cts. Being isolated from all black bees I am able to warrant every queen purely mated, and safe arrival guaranteed. Every queen is of good shape, and all have filled several combs with eggs before being shipped. I will replace every queen that hatches a black bee with a select tested queen, worth \$2.00.

If you want the best queens promptly, send me your orders. I am bound to suit you. Address as above. 13ftdb

JAPANESE BUCKWHEAT!

By freight or express, not prepaid.
Per bu., \$2.00; per $\frac{1}{2}$ bu., \$1.25; per peck, 75 cts.; 5 lbs., 50 cts; per lb. by mail post-paid, 25 cts. Address

John C. Gilliland,
Bloomfield, Greene Co., Ind.
5-14db
In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio; Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

KEYSTONE APIARY.

Imported and Alley Queen-Mothers

Tested, June..... \$3.00; July to October..... \$2.50
Fertile, " " 1.50; " " " " " " 1.00
Virgin, " " 1.50; " " " " " " 1.00

Alley drone and queen traps at regular prices. Send for circular.

W. J. ROW,

Mention Gleanings. 10-15db Greensburg, Pa.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75
PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO.,
3tfdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, \$1.25 each; untested, June to Oct., 75 cts.; 3 for \$2.10. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tfdb JNO. NEBEL & SON, High Hill, Mo.

Gift! Gift! Gift!

To every purchaser of one tested yellow Italian queen, in June and after, for \$1.50, I will give one L. frame nucleus, 50 cts. for each added frame of brood and bees. Tested queens, \$1.25; untested, \$1.00. Send for price list.

MRS. OLIVER COLE,

Sherrburne, Chen. Co., N. Y.

Chenango Valley Apiary. 10tfdb

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.

FOUND AT LAST!

How to cheaply keep eggs fresh for a year. Send for particulars.

DR. A. B. MASON,

9-14db Auburn, Aurdendale, Ohio.

In responding to this advertisement mention GLEANINGS.

B. J. MILLER & CO.,

NAPPANEE, IND.,

BEE - HIVES AND ITALIAN QUEENS.

4¼x4¼ Sections, from 500 to 3000, at \$3.50 per 1000; if you want more than that, write for prices. Brood-frames, T-tin Cases, Foundation, and Metal Corners. Send for price list. 11tfdb

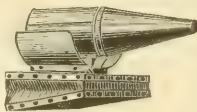
In responding to this advertisement mention GLEANINGS.



Bingham & Hetherington's Honey-knife. Patented 18° 9.

Bingham Smokers and Bingham & Hetherington Honey-knives are staple tools, and have been used ten years without complaint. The smokers last, work easily, throw a stream of smoke ten feet, and save time, stings, and money. Send card for descriptive circular of the cheapest and best tools in use—free.

THEY LAST.



ADDISON, VT.—Have one of your smokers, good yet, used 6 years. E. J. SMITH.

SILVER CREEK, KY.—I have had one of your smokers 3 years, and it is as good as new. T. W. HUDGENS.

Patented 1870. ELM GROVE, MASS.—Have one I have used six seasons, good yet.

F. M. TAINTOR.

AUSTIN, TEXAS, Apr. 24, 1889—Goods came through in good order. We are glad we can show our customers a full line of solid comfort.

Fraternally, J. W. TAYLOR.

FARINA, ILL., Mar. 23, 1889.—Those who see me use your smoker can not be persuaded to buy any other. They stand the test and do the work every time. Respectfully, M. D. HEWETT.

PRICES:

	By mail, postpaid.
Doctor smoker (wide shield).....3¼	\$2 00
Conqueror smoker (wide shield) 3	 1 75
Large smoker (wide shield).....2½	 1 50
Extra smoker (wide shield).....2	 1 25
Plain smoker.....2	 1 00
Little Wonder smoker.....1¾	 65
Bingham & Hetherington Honey-knife.....1	 15

TO SELL AGAIN, apply for dozen or half-dozen rates. Address T. F. BINGHAM, or

11-16db BINGHAM & HETHERINGTON,
Mention GLEANINGS. ABRONIA, MICH.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheap. We are offering our choicest white one-piece 4¼x4¼ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 11tfdb

G. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2¼ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

Crawford's Folding Paper Boxes

For Inclosing Section Honey.

THE BEST BOX FOR THE LEAST MONEY!
\$5.00 Per 1000

and less, according to quantity. Send for sample and price list. A. C. CRAWFORD, S. WEYMOUTH, MASS.

☞ In responding to this advertisement mention GLEANINGS.

SHIPPING - CASES

To hold twelve 4½x1½ sections, or fourteen 7 to the foot, \$6.00 per 100; 2x9 glass for same, 65 cts. per 100. Free price list of Bees, Queens, Nuclei, and every thing needed in the apiary. M. H. HUNT, 14-16-18d Bell Branch, Mich.

FOR SALE AT \$500.—20 acres of fine pine land, 100 small orange-trees, etc. One-quarter mile from station, store, postoffice, mill, church, and school. Title good. Address AUG. LEYVRAZ, Francis, Fla.

A RARE CHANCE!

Correspondence wanted with some one that will buy 15 full colonies of bees at \$3.00 per colony. Simplicity hives, combs built from fdn., and every thing first-class. Must be sold, as I can not attend to them another season. DR. CARL TUTTLE, Berlin Heights, Erie Co., Ohio.

☞ In responding to this advertisement mention GLEANINGS.

WANTED! TO REDUCE STOCK!

For the next 30 days we will sell untested Italian queens, at 55 cts. each; 6 for \$3.00; 12 for \$5.75. Tested, \$1.00 each. Bees for sale cheap. 14-15d R. B. LEAHY & CO., Higginsville, Mo.

FOX-HOUND PUPPIES FOR SALE.—First-class stock. Address C. A. WOOD, 13tfdb Tarrytown, Westchester Co., N. Y.

MUTH'S HONEY-EXTRACTOR, SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON, CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb

ITALIAN BEES AND QUEENS. Tested queens, \$1.50. Untested, 80c. Bees, per lb., \$1.00. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list. MISS A. M. TAYLOR, 9 10tfdb Box 77, Mulberry Grove, Bond Co., Ill.

☞ In responding to this advertisement mention

Italian Queens by Return Mail.

Tested, \$1.00; untested, 50c each, or more at same rate. 10tfdb I. GOOD, SPARTA, WHITE CO., TENN.

LITHOGRAPH LABELS

In 12 Colors, at \$2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2½x2½. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; \$1.20 for 500; \$2.00 for 1000. A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 3 new Novice style extractors (for L. frame) worth \$7.00 each, for small printing-press, etc., or something else useful. 14 16db S. S. LAWING, Henderson, Webster Co., Mo.

WANTED.—Any one that has a book suitable for a mission Sunday-school, and would like to donate the same, to send it by mail to 13tfdb GEO. E. HILTON, Fremont, Newaygo Co., Mich.

WANTED.—To exchange 250 colonies of bees, for horses, mules, wagons, buggies, and 4 h. p. engine, or any thing useful on a plantation. 21tfdb ANTHONY OPP, Helena, Phillips Co., Ark.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address OTTO KLEINOW, 4tfdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange a complete apiary of 25 colonies choice Italians and all needed fixtures for a 56-in. bicycle or offers, a rare bargain. 13d H. C. CRAGG, Groesbeck, Hamilton Co., Ohio.

WANTED.—To exchange a foot-power machine for perforating zinc honey-boards; and a machine for weaving wire and picket fence, for a lawn-mower, or any thing useful. 14d M. W. SHEPHERD, Rochester, Ohio.

WANTED.—To exchange 80 acres of land in the basswood belt of Wis. A splendid location for bees, for full colonies of bees, and supplies. For information, address B. J. THOMPSON, 14-15d Waverly, Pierce Co., Wis.

WANTED.—To exchange a Barnes' com. saw, for honey or wax. J. C. MILLMAN, Elk Grove, Wis. 14d

Black and Hybrid Queens For Sale.

Black and hybrid queens for sale, 30 and 50 cts. respectively. J. A. KIME, Fairfield, Pa.

Now ready to mail, Italian-hybrid queens at 30c each. N. A. KNAPP, Rochester, Lorain Co., O. 13-14d

Fifty mismated Italian and hybrid queens for sale at 25 cts. each. J. C. WHEELER, Plano, Ill.

A few mismated Italian queens at 25 cts. each; five for \$1.00. GEO. L. JONES, Grand Ridge, Ill.

FOR SALE.—For 6 weeks, 4 or 5 black queens per week, 15 cts. each. F. R. KOONS, East Boston, N. Y.

A few hybrid-Italian queens in Peet's cages during July and August at 30 cts. each. Write before sending money, as queens may be sold. G. WIEDERHOLD, Yonkers, N. Y.

FOR SALE.—A lot of black and hybrid queens. Five blacks or 14 hybrids for one dollar. H. F. HART, Avery, La.

Twelve hybrid queens for sale at 21 cts. each. These queens are very prolific, having been raised in full colonies, under the swarming impulse. J. H. JOHNSON, Middaghs, Pa.

Having purchased a large apiary of choice black and hybrid bees, I will sell the queens at 20 cts. and 30 cts. respectively. OLIVER FOSTER, 13tfdb Mt. Vernon, Linn Co., Iowa.

HONEY COLUMN.

CITY MARKETS.

BOSTON.—Honey.—We are entirely out of comb honey; not a case in the store—something that has not happened for a long time. We are expecting new every day. Price will be about 18 cts. We have received some new extracted white clover from Vermont, selling at 8 to 9 cts.

July 10. **BLAKE & RIPLEY,**
Boston, Mass.

NEW YORK.—Honey.—Extracted is scarce. We quote orange bloom and palmetto at 7@7½. California, new light amber, 7@7½. Southern, inferior grades, 65@70. California, comb honey, new, 1-lb. sections, in eastern style, 12@14.

July 10. **F. H. STROHMEYER & Co.,**
New York.

CHICAGO.—Honey.—Some of the new crop has come to market, and has sold from 15@17; the higher price being paid for a good straight lot of scant one-pound sections, all combs being straight, color and flavor that of white clover. The market will not be active until later in the summer. New extracted, 7@8. *Bee-wax*, 25. **R. A. BURNETT,**
July 11. 161 So. Water St., Chicago, Ill.

CINCINNATI.—Honey.—Arrivals are fair of new extracted and comb honey. Demand is slow. We quote 5@8 on arrival as the range of extracted honey, and 12@15 for fair to choice comb honey in the jobbing way. *Bee-wax*. There is a good demand at 20@22 on arrival for good to choice yellow.

July 13. **CHAS. F. MUTH,**
Cincinnati, Ohio.

KANSAS CITY.—Honey. New comb honey, firm, this State coming in quite freely; selling slowly at 16@18 for 1-lb. sections. No new extracted in market. *Bee-wax*, none. **CLEMONS, CLOON & Co.,**
July 10. Kansas City, Mo.

ST. LOUIS.—Honey.—Market quiet, with sales ranging from 6¼@6½ in barrels for light, good flavor. Dark, 5@5½. *Bee-wax*, prime, scarce at 25.

July 10. **D. G. TUTT GRO. CO.,**
St. Louis, Mo.

DETROIT.—Honey.—The market is lifeless. What little honey there is left is poor. No new honey in. Comb honey, 12@15. *Bee-wax*, 25. **M. H. HUNT,**
Bell Branch, Mich., July 10.

COLUMBUS.—Honey.—Honey is coming in very slow. Too much swarming in this section. Some good white honey would find ready sale in our market at 15@16 in 4¼x4¼ sections.

July 11. **EARLE CLICKENGER,**
Columbus, Ohio.

FOR SALE.—Extra choice clover honey in boxes of two 60-lb. tin cans each per box (120 lbs. net), \$10.00. **OLIVER FOSTER, Mr. Vernon, Linn Co., Ia.**
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FOR SALE.—1000 lbs. new first-class white-clover extracted honey, at 7 cts. per lb., in lots of 100 or more lbs., delivered on board of cars free; purchaser furnishing packages, or paying undersigned for same at A. I. Root's prices.

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See advertisement in another column.

HOW TO MANAGE BEES; OR, BEE-KEEPING FOR THE "MASSES."

Every farmer, and all beginners in bee-keeping, as well as those more advanced, should have it, as it is especially adapted to their wants. Fully up to date. Price \$1.00, by mail. In beautiful paper covers. Illustrated. Address

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QUEENS BY RETURN MAIL

From the Old and Reliable Knickerbocker Bee-Farm (Established 1880).

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100 2 L. Frame Nuclei,

With pure Italian queen, and 1 lb. of bees extra. I have shipped bees to almost every State in the Union, and I always please the buyer. Any who prefer can send their money to A. I. Root, and their orders to me, and they will be filled promptly. There has never been any foul brood in this section. Queens are all young. Price \$1.50 per nucleus.

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The new revision of the BEE-KEEPER'S TEXT-BOOK is now out, and ought to be in the hands of every bee-keeper. Its simplicity of language makes it a guide to the beginner. It treats on just the subjects that the beginner wants to know; answers just the questions he would ask. For the next 90 days we will send postpaid the text-book and the ADVANCE one year for \$1.00; or if paper cover, for 75 cts.

Address

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PRICES REDUCED.

Untested queens, 65 cts.; 10 for \$6.00. Select tested, \$1.50; ten 2-cent stamps taken where postal notes can not be had. Can send by return mail. Money orders payable at Nicholasville.

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The Best Queen in the Country.

Putnyville, Pa., July 1, 1889.

Henry Alley:—The queen I bought of you in 1889 is the best queen in this country. I would not take \$15 for her. I advise all my bee-keeping brothers to buy their golden-yellow queens of you.

CLARK SHREKENHORST.

All our queens are reared in full colonies having fertile queens. No queens reared in queenless colonies in the Bay State Apiary.

Prices.—Warranted, \$1.00; select warranted, \$1.25; tested, \$1.50; select tested, \$3.00. Safe arrival guaranteed. Our circular gives simple instructions for finding a queen in a colony, and a safe method for introducing queens.

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THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free.

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Catalogue Free.

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Eaton's Improved SECTION CASE.
BEES AND QUEENS. Send for free catalogue. Address

FRANK A. EATON,
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Vol. XVII.

JULY 15, 1889.

No. 14.

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OUT-APIARIES NO. XI.

SHUTTING UP BEES, AND HAULING.

IF it is necessary to fasten frames in the hive, it may be done any day previous to the hauling. I prefer to do it when bees are flying. All the other fastening may be done any time beforehand, except the shutting-up of the entrance. That should not be done sooner than the evening before the hauling, after the bees have stopped flying for the day. If you are up early enough, you can fasten them up in the morning of the day when you haul them. If it is tolerably cool, or if your bees are very quiet, and you are very careful, you may be able to shut them in without using any means to quiet them. Move softly, for once aroused it will take some time for them to settle down. A little smoke will drive them back so you can imprison them. *Very little* is enough, for I suspect that the application of smoke, when bees can not fly immediately afterward, does them no good, to say the least. Lately I use water instead of smoke. I don't think the water does any harm, and I suspect they are often the better for it. Take a pail of water, and, with a dipper, dash about a pint into the entrance, not all at one dash, but so it shall be wet in all parts. That seems to leave the entrance clear of bees, and on the whole I like it better than smoke.

If you expect to haul more than one load in a day they must all be shut up before they start to fly in the morning. If water be used at the final shutting-up, I think it is just as well for the bees to be shut up at night as in the morning. They don't find out they are fastened in through the night, and so don't worry. You may fasten them up in the evening, and haul them the same evening. If the weather is cool they will stop flying quite early in the afternoon, giving you time to make most of the

journey before dark. Before putting a hive on the wagon, give it a searching examination to make sure there is no crack anywhere that a bee can get through. You will do well to use no very old hives for hauling; still, you may be obliged to use them, and special pains must be taken to see that there is no danger of bees getting out on the way. Plug up carefully with old soft rags any spot that you think is about half big enough for a bee to crawl through. Let me suggest, if I have not done so before, that you must be very careful not to have bees get out on the way. Look all over the top of the hive; examine closely the front, the back, each side; tilt the hive on end, and scrutinize the bottom. Don't be fool enough to hitch your horse in the wagon before your load is on. Let every thing be in readiness to start the minute the horse is hitched on. Have hammer and nails along, ready for emergency. Take a lighted smoker with you, and be ready to have every third man you meet tell you your load is on fire. After you have had experience enough, it is possible you may not keep the smoker burning, but don't try it too soon.

When I use two teams at a time, both wagons are loaded before either team is hitched on, then both teams are attached. I mount one wagon, my assistant the other, and off we go, keeping within hailing distance of each other. If bees are flying when we start, it may be necessary to haul the wagon a little distance by hand before hitching on, so that the bees may not annoy the horses. For some time after starting, if the bees are flying it makes me very nervous to have loose bees flying along, following the wagon, for I am never sure that none of them are getting out of the hives on the wagon. I heave a sigh of relief when the last one disappears. During my first experience in hauling, one day I was going along very quietly, when all at once a number of bees were flying

about the wagon. Before I had time to examine the hives thoroughly it occurred to me that we were passing by a large maple-tree in full bloom, and the smell or the noise of the bees in the hives attracted the attention of the bees that came to the tree. The same thing has occurred many times since, also in passing other hives near the roadside.

In hauling bees after night, there is, I think, no danger of horses being stung; but if there should happen to be a leak in a hive anywhere near where you are sitting, it is not pleasant to have the bees crawling over you, and possibly stinging you, for you can't very well do any thing but drive straight along, unless you prefer to get off and walk. If your road is smooth you can jog along on a trot. Have your horse hitched up tight; that is, so that when he is standing still he can not move a step backward or forward without the wagon going with him. Then if you come to a bridge which is bad at the jumping-off end you can stop your horse and ease down the wagon off the bridge. It is hardly necessary for me to say, that all hives should be loaded on so the frames shall be *across* the wagon, not lengthwise. C. C. MILLER.

Marengo, Ill.

Every thing you say, friend M., reminds me vividly of my trials when I used to draw bees on the one-horse wagon; and I assent to every point you make, with the exception of the closing one. I would assuredly have the frames run *lengthwise* of the wagon; for if they didn't, when you undertake to ease the wagon down from that bridge you mention you would bump the heavy combs out of the frames. Haven't you made a mistake?

AMONG THE BEE-KEEPERS OF VERMONT.

MR. MANUM AT HOME.

EARLY one morning last August the writer boarded the White Mountain express and left Little Rhody, with her extensive and diversified manufactories, with the purpose of gratifying a long-cherished desire to visit the principal Vermont honey-producers. We were hurried up the valley of the Blackstone, past the numerous factory towns and hamlets into Worcester, then away toward the northern hills, across Massachusetts, through the level country between Gardiner, Winchendon, and Keene, from which grand old Monadnock towers up alone out of the apparent level, with its peaked summit piercing the clouds.

As we crossed one corner of New Hampshire and neared Bellows Falls, the scenery was more mountainous, and the road ran along the hillside above fertile-looking valleys, and soon the noble Connecticut River came to view, its waters flowing peacefully through the wide valley after its rush and leap at Bellows Falls. At the Falls this great volume of water rushes through the crooks and turns of a narrow channel worn in the rock, and, whirling and boiling, tumbles over the ledge into the wide bed below. Owing to there being less water than usual, its roar was not as deafening as at the time of former visits. Here log-drivers are a familiar sight, and in the season do some of their most dangerous work.

Near the Falls is the junction of several railroads,

and at the depot restaurant we took the usual hurried lunch. The extensive works of the Vermont Farm Machine Co. are located here in the town, as well as prosperous paper-mills. At the freight depot men were weighing loads of wood pulp, thick sheets right from the mill, and still wet.

At Bellows Falls we parted with the White Mountain travelers, whose route followed the Connecticut up through White River junction, while ours was through Rutland toward Burlington. Along the route the hills were higher, and the road ran first on one side of the valley then on the other, while the blue outlines of the Green Mountains were to be seen on the east. The road ascends all the way to Rutland, and we were conscious of a different air and altitude. Before reaching there we occasionally noticed small apiaries, and at East Wallingford we had a passing view of an apiary of about 50 colonies below the railroad. Their keeper was evidently standing over an open hive, while hive-cover and sections were lying near. Rutland was reached about 2 o'clock, but we soon left this fine town and important railroad center, and soon were speeding away through the towns bordering on Lake Champlain. Off at the west, beyond the lake, which was hidden, the dim blue outlines of the Adirondack peaks were plainly visible, while at the right the Green Mountain range towered up abruptly, and reached as far as could be seen north and south.

After passing the marble-quarries for which Rutland is celebrated, and when near the station of Proctor, we saw another apiary of 40 colonies or more, and learned that in the vicinity were two others of 50 or 60 colonies, and at Brandon a yard of 100 colonies.

We passed through the beautiful town of Middlebury, the home of Mr. J. E. Crane, a leading bee-master of the State, but I did not stop, leaving that for our return trip. In the woods along the river we noticed that large white-poplar trees were numerous, and realized that we were near the home of the white-poplar section and shipping-crate.

At New Haven we took a stage to Bristol, $5\frac{1}{2}$ miles away to the east, and at the foot of the Green Mountains. Here is the home of Mr. Manum, which, in response to a cordial invitation, we had chosen as our first destination. Not knowing the day we were coming, he was at an out-apiary which he had commenced to move to a new location. We were cordially welcomed by his wife, whom we found to be a genial hostess, and not only interested in but well posted on the affairs of the apiary.

The time passed quickly, and before dark Mr. Manum and assistant drove up, each with a load of outer cases compactly piled and securely tied together with numerous ropes.

We soon had the pleasure of conversing with one whose extensive bee-operations prepared us to appreciate the privilege. We found him very genial, a free talker, ready to give any information he possessed, also ready to see the value of and quick to adopt any good thing advanced by others. He says he has no secrets to withhold, and considers it a duty to make public any information he possesses, and has written many long letters explaining his methods to many in various parts of the country, free of charge, but admitted this was too much of a tax on time and strength. We can testify that he has done this for us in the past, for which we are very grateful.

He is a medium-sized man, dark complexion, with no spare flesh, but very active and energetic. His eyes are small and black, and light up pleasantly in conversation.

We had a bee-convention by ourselves; and when I recall the number of nights which we sat and talked until midnight, and think of his family, I still have twinges of conscience. Mr. Manum's house is on the main street, near the mountains, which here tower up abruptly to a great height, and are covered with foliage to their very tops—*green* mountains indeed. Back of the house is the work-shop, and honey-house and stables, which we inspected the next morning. Here are the headquarters from which loads of supplies prepared in winter are sent to the out-yards, and where the honey is cleaned, graded, and stored. The sections are cleaned by women and girls, and separated into four grades. Those combs, the most perfect and white, are marked "Snowflake;" those full and white, "Green Mountain;" fair and good weight, "Comb Honey;" and the fourth, "Light Weight." Wooden sides are used entirely instead of glass, and are fastened on with strips of paper. Crates take 20 sections,

The top-bars of his frames hang on strap-iron rests, or rabbets, and do not touch the hive at the ends by a quarter of an inch; this prevents their being glued down. To keep them from swinging when moved, a quarter-inch strip, as wide as the rabbet is deep, with small blocks nailed on at the right distance apart, is crowded down into the rabbet at each end, and another is tacked across the bottom, which keeps all as snug and firm as closed-end frames. He has two rigs for carting bees; the single team takes 23, and the double team 50 hives. One tier is set on the wagon-bottom, then a rack put in that stands three or four inches above them, on which is placed another tier containing two additional hives. The thumb-screws are then turned up to bring the wagon-body firmly together.

After a pleasant ride of 5 miles along the mountain stream with its varied scenery, and during which time we gained much information from our companion, he turned into a farm-yard and drove up the hill, where were more rows of hives with a honey-house near by. Here the bees had not done as well as elsewhere, and were to be taken to a better location in the valley north of Bristol. Soon all hands were lifting frames of bees out of hives and



MR. MANUM AND HIS HOME APIARY.

Back of the honey-house, beneath the branches of a small orchard, was the "Home" apiary. Nearly all colonies were in chaff hives, numbered and arranged in long rows; there were also many nucleus hives containing surplus queens, and near by a long row of the Chapman honey-plant, most of it out of bloom, but a few balls were in flower.

We had urged him to continue the moving, and allow us to accompany him; so after looking through the home yard we started for the Lincoln apiary, to bring back a load of bees. Another team had preceded us to get a load of outer cases. One wagon was filled with empty hives, made with permanent bottom for shipping. The bottom and sides were of light boards and a sheet of muslin; one edge permanently attached served for a cover. In the ends of boxes were auger-holes covered with wire cloth.

putting them into shipping-boxes; queens were generally found, and covers marked accordingly. Strong colonies were divided into two parts, for fear of smothering. Bees were cross, and smoke was hardly protection enough. They were bothered some; but as we always have our veil handy, we were all right, and felt more than ever satisfied that we did not care to entirely dispense with a veil.

The muslin cover was tacked down all around, and the wagon loaded. The cleats on two sides of each hive kept them from rubbing each other or the wagon-body, and saved the covers from wearing through. The horses had been taken out of the shafts, and tied at a distance. When loads were ready, one mounted the wagon, the other two hitched in the horse, threw up the reins, and they were off at once. We reached Bristol all right, but

it was evident that the bees were needing more air; so instead of leaving them on the load they were taken off and allowed to fly. Rims were then made and covered with wire cloth, and used in place of muslin to finish the trip, and with the remainder. He usually makes new apiaries in the spring when bees are few, or when it is cooler in the fall, then the muslin works all right.

Three horses are used during the season, and occasionally extra ones hired.

There are seven out-yards, $2\frac{1}{2}$ to 16 miles from the home apiary, and through the swarming and honey season a man is kept in each. There are about 700 colonies in all, and he intends to leave 125 in a yard every fall. This number insures, after making nucleus colonies, at least 100 good strong working stocks ready for the honey-flow.

Pawtucket, R. I.

SAMUEL CUSHMAN.

To be continued.

MANUM IN THE APIARY WITH HIS MEN.

HOW TO SAVE LABOR AND TIME IN MANIPULATING HIVES.

JULY 18.—“What are you looking after, Will?”

“I am trying to find this queen. She is two years old, and I want to supersede her with a young one, as you told me the other day to remove all two and three year old queens and introduce young ones in their place. I have now a number of fine ones just commencing to lay, and more queen-cells coming on to take the place of the young queens in the nuclei. I have looked through the hive twice, but I can't find this old queen, there are so many bees in the way.”

“Well, just close the hive, and allow them to quiet down for a few moments, and then we will try to find her. Never keep a hive open too long; it is better, after looking a while, to close the hive for an hour, and then try again.”

“While we are waiting, Mr. Manum, I wish you would look at No. 10. I have tried three or four times to introduce a queen in that hive, and have failed each time. They ball her as soon as liberated, and I don't wish to lose any more queens by that colony.”

“How long have they been queenless? Can you tell?”

“By the record, 17 days; and I have kept the queen-cells cut out, as I wished to give them a laying queen; but I have failed in that, and they have nothing now but sealed brood.”

“We sometimes have such obstinate colonies, and it is not many years since I hit upon a plan to make them accept a queen. Have you any virgin queens?”

“Yes, several.”

HOW TO MAKE AN OBSTINATE COLONY ACCEPT A VIRGIN QUEEN.

“Very well; you may cage one and bring her here. There, I will now shake all of these bees on to the ground, in front of the hive, say two feet from the entrance—there, so. Now, this last comb I will shake near the hive, so that the bees that are on it will attract the others to the hive. Now, when they get well to running into the hive, just let the virgin queen run in with them, and the job is done. I have found that a colony in this condition will accept a virgin queen when they will not one that

is fertile. Another way I have succeeded in making such a colony accept a queen is to take out three of their combs and give them a good nucleus having a laying queen, by setting the combs, bees, and queen, from the nucleus at one end of the hive, where I take out the three combs. This should be done very carefully, not to excite the bees either from the nucleus or those in the hive. It is a good plan, when uniting in this way, to drop a few drops of essence of peppermint on the bottom of the hive.”

HOW TO FIND A QUEEN IN A POPULOUS COLONY, WITHOUT LIFTING OUT ALL THE COMBS.

“We will now return to hive No. 10, where you failed to find the queen, and I will try to find her for you. Now watch and see how I look for queens when that is all I am after. There, I first remove the comb nearest to me and set it against the hive near the entrance, after first looking it over for the queen. Now I cast my eye over the side nearest to me, of the next comb, and carefully move it toward me to the side of the hive in the place of the first comb. I raise it barely enough to move it; at the same time, I look for the queen on the side of the third comb which is in sight, by the removal of the second comb, and at once look on the opposite side from me of the second comb, and then raise the third comb and set that in place of the second, and quickly look at the side of the fourth, and so on through the hive until she is seen on one of the combs, when it is quickly raised, and the queen removed. I can find queens in this way much quicker than by lifting the combs out of the hive; but if I do not find her when going through the hive in this way, when returning I lift out each comb and look it over carefully until she is found, or the combs all looked over and placed back where they belong, when, if she is not then found, I close the hive for a short time, as I told you to do with this one. There she is on the fifth comb. Now look at her before I lift out the comb, and see how plainly they can be seen in this way.

“Here is another thing I want you to observe; that is, that *queens have red legs*; that is, the lower half of their legs is a dark brownish red, while drones and workers all have black legs. This fact will sometimes help you to find a queen where the bees are very thick, and cluster over her; so then, when you see a bee with red legs you may know it is a queen.

“She is a nice queen, and it seems too bad to discard such a fine one as she is; but she must go. I would rather have young ones to carry a swarm through the spring. Now, just at night you may give them another queen.”

A. E. MANUM.

Bristol, Vt.

Very good, friend M. I have practiced exactly the plan you speak of for finding queens, although it never occurred to me to put it in print; and I have used that same plan when some one else had tried and failed before. I have never noticed that the legs of a queen were of a different color from those of the other bees, but I have discovered that I can detect a queen a great many times by getting a glimpse of her legs, especially when she is under a clump of bees, when I could not otherwise. And since you speak of it, I think there is a shade of difference in color. Sometimes I got just a glimpse of her long striding legs, and then

they would be lost; but I felt so certain that the legs belonged to a queen, and nothing else, that I kept my eyes on the same spot, or nearly there, and eventually I would find her. I am much obliged to you for reminding me of this matter. Now, I believe that, if the queen I was hunting for to replace should prove to be a fine large one I would let her alone. Very likely, however, it would be a mistake. I can not quite see why any colony should receive a virgin queen when they would not receive a laying one—that is, unless they have already a queen of some sort. In that case they might neglect to notice the virgin queen, where there would very soon be a hubbub were we to put in a laying queen. I believe I have always succeeded in getting any colony to accept a queen by simply taking all their combs away, and leaving them clustered on the side of the hive, without any combs at all, say for from ten to twelve hours.

IMPORTED QUEENS AS HONEY QUEENS.

HOW TO MAKE SELECTED HONEY QUEENS DUPLICATE THEIR QUALITIES IN OTHER QUEENS.

OCCASIONALLY there is found one of those queens (see p. 508, June 15) that will produce workers better than the average, and there are two very strong chances to run in breeding from these abnormal freaks of nature. The chances are, the strong tendency of perpetuation of either an establishment of the peculiarity or of the direct reverse. These peculiarities are occasionally found in every thing, and the best way is to test the reproductive tendency, and by in-breeding establish it. I knew of such a case happening among half a dozen imported queens obtained from the Home of the Honey-bees in 1882. The queen was dark, small, and inferior-looking. Her workers were dark leather color, very large and long in the abdomen, and heavy-winged. They were gentle in the extreme, and rather lazy in their actions. But they just lugged in the honey. Now, the law, as a rule, is to show characteristics mostly in the alternate generations; and to dispose of that alternation, this plan was resorted to, that proved true: Queens were raised in abundance from her, and a whole apiary of 30 colonies were queened with them; drone-combs were inserted in the hives of those queens mostly resembling their mother's workers in general characteristics. The queens that raised the most even drones were then given an abundance of drone-comb, and it was excluded from the other hives, and the drones all trapped off that were in the apiary. More queens were raised late in the fall, and were mated with these drones, because there were no others permitted to come out of the cells. In 1883 these queens showed the characteristics in their workers that were in those of the old queen; and from these young queens another set were raised to be used as drone-breeders, to raise drones for mating with the old queen's daughters which showed the result, and the daughters from other strains were brought to the mating apiary to further test the results, which proved to be continually becoming more established; and I know where there are hives to-day that have queens containing a tincture of that blood which was sur-

prisingly apparent during the two very poor seasons of 1887 and '8. Neighbor H. had better stock one apiary with queens for drone-raisers from that best queen, and use her for a second-generation breeder.

H. L. JEFFREY.

New Milford, Ct., June 29.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

MORE WONDERFUL STILL.

I THINK I have before mentioned that we send GLEANINGS to the pastor of our church. Although we are so unfortunate as to change pastors quite often, somehow it does not seem to take very long for a minister and me to get acquainted, and to become very intimate friends. As a matter of course, he takes GLEANINGS. I think I have mentioned that our last pastor was called back to China. Our new one is quite a young man; but for all that, when he read that passage in our last journal, asking all the bee-friends to go right to work and look over cyclopedias, he pulled his down from the shelf, and what do you think he found? Well, right here it is below:

Dear Brother Root:—In accordance with your suggestion in GLEANINGS for July 1, I consulted the *American Cyclopaedia* on the subject of artificial honey. In the body of the work, under the article "Glucose," we are referred to the Supplement; namely, the *Annual Cyclopaedia*. In the Annual for 1881 (Vol. VI. of the New Series), under article "Glucose," p. 351, column D, line 25, I find this statement: "Glucose is very extensively fed to bees, which eat it with great avidity, and store it away unchanged as honey. It is also put up directly in trade, as honey—with which bees have had nothing to do—being put up by means of appropriate machinery into artificial combs made of paraffine." As Messrs. D. Appleton & Co., publishers of the above, issue a supplement every year, I hope you can secure a retraction in the issue of 1889.

Medina, Ohio, July 3, 1889. NORMAN PLASS.

Now, the astonishing part is, the statement above has been *eight* years before the American people—in fact, in the *American Cyclopaedia*; and yet with all our zeal to hunt up newspaper editors and take them to task, not one of us has in all these years found the above scandalous and ridiculous statement. I presume the publishers of cyclopedias pay the men who write up a special subject for them a good price for so doing, and these men are supposed to obtain their facts from actual practice. Suppose a man should be employed to write up the subject of brick-making for a cyclopaedia; and instead of going to a brick-yard and spending several days and weeks in watching the workmen, and talking with the proprietor, he should simply hunt over newspapers and talk gossip with people who had never been in a brick-yard in their lives. Well, it is just what they have been doing on the subject of bee culture. A man was

procured to write up the subject of glucose. Instead of going to a glucose-factory, or consulting a manufacturer, or even a workman, he goes and gives for a cyclopedia the above absurd piece of newspaper gossip and scandal. If this is the way they do things, the makers of cyclopedias, the publishers and agents should be told, when they come around with their books, "No, thank you. When we can find a cyclopedia that gives us facts obtained from real practical work, we are ready to invest; but no book shall find a place in our families for our children to read, that retails falsehood and scandal like the glucose story."

BEEES FOR BEAUTY OR BEEES FOR BUSINESS—WHICH?

SOME VERY PERTINENT SUGGESTIONS.

IN the selection of queens for breeding purposes, should there not be less stress put on those producing workers having three or more yellow bands, that we have been told so often are the distinctive markings of *pure* Italians, and more be said about pure Italians that have that peculiar vim that indicates business in the hive and field? There has of late been much said about such very bright workers and red-headed drones, that many might be led to believe that only bees possessing those characteristics would be of any benefit to any one contemplating the keeping of bees. The question seems to be whether to breed for beauty and gentleness, or for utility and as much gentleness as we can. As the result of several years of breeding for beauty and gentleness, we find that, in nearly all cases, where we have a colony that are beauties and need no smoke when we manipulate, that these same bees are far behind some of their less showy and darker neighbors. Of course, there are exceptions, and we find that occasionally there will be bees combining all three requisites; viz., color, gentleness, and excellent honey-gatherers; but when we breed from queens producing such bees, they almost universally fail to reproduce all those requisites; therefore we have come to the conclusion that, from a financial standpoint, it is very nearly impracticable to breed such ideal bees; while, on the other hand, we can quite easily breed a strain of pure Italians that do not have any distinctive marking, yet they are hardy and great workers, and it would do a man's heart good to see them dropping away in front of their hives and finishing the rest of their journey on foot; and when we look into their hive they make one say, "By their works ye shall know them."

Risking the treading on some queen-breeder's toes, we will say, that, generally, these beautiful golden yellow bees are the "dudes" in beedom. Some of our largest honey-producers repudiate these same light-colored bees, and some have decided that a cross between dark Italians and the brown bees produces a strain possessing more good points than any race in their purity; but we have a very strong opinion that a strain of dark leather-colored Italians can successfully compete with any bee on earth, and in all points. If we are wrong, we have the consolation of knowing that we are not alone, and that hundreds stand ready to be convinced of their error, if error it is. Who is there that is trying to make his bread and butter by

the production of honey, that cares whether his bees show beauty or not? Stings are to be expected; and if a colony of bees have stamina enough to fill their hive and supers with honey, they will try to protect it. Judgment must be used in handling bees, as *all* times is not always the *right* time; and this fact should be borne in mind when people wish to peep into their hives, or take off honey; if they will, there will not be so many wishing for bees showing a more gentle and loving disposition.

Rochester, O.

M. W. SHEPHERD.

CARING FOR COMB HONEY.

SOME SEASONABLE HINTS FROM G. M. DOOLITTLE.

AS the time is near at hand when the main crop of white honey in sections will be taken from the hives, I thought that a few words relative to the care of it might not be out of place. Next to getting plenty of comb honey in sections, is the care of it. Many seem to suppose that the producing part is about all there is to any branch of business which supplies our markets with merchandise. How often we find butter, wool, maple sugar, meat, etc., taken to market in such poor shape that they do not bring as much, within 20 per cent, as goods of no better quality are selling for, where the producer understands that the placing of his product upon the market in attractive shape has much to do with the value thereof. It is said of a certain strawberry grower, who always produces very fine berries, and puts them on the market all fresh and nice, that he always finds a ready sale for his berries at a very high figure, while those of shiftless producers spoil on the markets without a purchaser. Thus he obtains more money for his few rows of choice fruit put upon the market in attractive shape, than is obtained from as many acres grown in a slipshod manner, and put on the market in an unattractive way. Honey is no exception to this rule, unless it is that the difference is still greater than on most other productions. Hence, to place our honey upon the market in the best possible shape should be the aim of every bee-keeper in the land. My aim has always been, not only to get the honey off the hives before it was soiled by the bees, but also to keep the combs as nice and perfect till they are placed upon the market as they were when first taken from the hive. This is no easy task; for from the first, honey is liable to accidents which, if they occur, soon reduce the price from that of a No. 1 article down to that of second or third quality. I once hired a man to help me remove honey from the hive, as I was nearly sick and unable to keep even with my work as I desired to; but after his working with me half a day I so improved in health that his assistance was no longer necessary. He would manage to get his fingers against the honey, so as to break the nice cappings to about every other box, in spite of all I could say or do; and if he did not do that he would get the corner of one box into the face side of the comb in some of the other boxes, till I actually believe I paid him 75 cents for doing me \$10 damage. Where a person is naturally sensitive, and wants things nice, as they always should be, such proceedings will cure a slight sickness quicker than a physician can. I give this illustration only to impress on the mind of the reader that the utmost care is necessary at all times

when handling section honey, so that it may be kept in its virgin purity if we would command the best prices in market, and not injure the same for some one else.

The lack of care is one great cause of the ruinous prices we are often obliged to take in the markets. Mr. A. takes his honey to market after it has stood on the hive till it is dingy with the soil of the bees traveling over it, and it is often put up in boxes or cases having a slovenly appearance, with a determination to sell it for what it will bring, which is often not enough to cover the cost of production of white honey. Mr. B. goes a few days after, with his snow-white combs put up in handsome cases, and finds he has to compete with A's in price, or not sell at all, as the parties having A's honey know if B's is put alongside of A's they can not sell a pound of A's till all of B's is disposed of; and thus the price paid for A's honey is used as a leverage to bring all honey down to that figure. These things ought not so to be, nor would they be if all would read our bee-papers, and not only try to see how nice they could put up their honey, but also try and not injure the market for some one else, thereby doing by others as they would have others do by them.

The first requisite in caring for our honey after it is taken from the hive is a warm room in which to store it; one that has a free circulation of air all about it as well as to be warm. Years ago it used to be the custom to store honey in the cellar to keep it cool, but I believe that all of our practical bee-keepers of to-day prefer a warm room to a cool one, on account of the honey sweating, or taking on dampness in a cool room, thus giving it a watery appearance. If left for a great length of time in such a place, the honey will often become so damp and thin as to burst the sealing, leaking badly, and souring so as to nearly ruin it. To secure a free circulation of air, as honey will take on dampness even in a warm room if the air is partially excluded from it, build a platform of scantling a foot from the floor, and six inches out from the wall, upon which to pile the filled sections, keeping them in the same position they occupied while standing on the hive. On warm days raise the windows on either side of the room, so as to admit all the fresh air possible; and as it comes toward evening, close them again. To prevent robbers coming in and also to let the few bees that may come in on the honey get out, cover the window (tacking it to the outside casing) with wire cloth, letting it go above the casing nearly two feet at the top, and keeping it out from the building half an inch or so by means of strips of that thickness tacked to the outside of the building. Examine the honey occasionally to see if the larvæ of the wax-moth are troubling it; and if so, fumigate it with burning sulphur. If you are careful not to get any sections having pollen in them in the main pile, it will be a rare thing that the honey will need sulphuring. Kept in this way our honey is always holding its own, or, if any thing, growing better; and if properly crated and put upon the market at the right time it will command the highest price, and you will feel a pleasure in the matter, never enjoyed by any one who does things in a slipshod manner. G. M. DOOLITTLE.

Borodino, N. Y., July 3, 1889.

Friend D., I am almost glad you have had experience with one of these individuals who will stick their fingers into nice sec-

tions of comb honey, or punch another section into it, or, in short, do every thing but the right thing. Nobody knows the real luxury of having a trained and experienced hand about him until he has tried working with the average run of people who are round hunting for a job. Now, it is a little funny that this individual didn't complain because you didn't pay him as much money as you did somebody else, or perhaps as you could afford to pay an experienced hand. I am sometimes tempted to lose charity for all humanity when I see people so fearfully awkward, and then indifferent about it afterward. Had this individual of whom you speak said to you, "Neighbor D., you are setting me at something I never did before, and something in which I have had no experience; I really fear that I have been more trouble to you than I am worth; and if you will let me stop right where I am there shall not be any charge for what I have done. Nevertheless, if you wish me to go on I will try to see if I can not do a little better," all would have been well. Where I find people ready to speak out and show the spirit of something like what I have just quoted, it makes me feel hopeful. But where they do not say a word, and never offer to pay for the mischief they have made, it gives me a very sorrowful feeling, and I lie down at night weighed down by the fear that thousands upon thousands will *still* be without employment as long as the world lasts. You see, you have unconsciously touched upon the absorbing topic of my life—WHAT TO DO. Now, then, to the great wide world of working people, I want to say that friend Doolittle has, in his little sketch, told exactly *why* many of you are without work, and why you do not get *better* pay than you are getting now. It is because you do not enter heart and soul into the work that lies before you, and fall in line with your employer's thoughts and ideas, and try to save his property, and *help* him to get a good price for his product instead of helping to make it unsalable. "Whatsoever thy hand findeth to do, do it with thy might." Yes, one word more: I do not wonder that you got well, old friend. My health improved once amazingly in a very short space of time, when I found one of the boys *digging up* a crop (just planted) with a *cultivator*. And here comes in another moral: I am sure we often imagine we are sick, especially during hot weather, when the truth is we simply want *stirring up* and *shaking up*.

VANDEUSEN REVERSIBLE FRAME, AGAIN.

1 3/4-INCH SPACING PREFERRED TO 1 1/2 INCH.

I HAVE read Z. T. Hawk's article, page 513. In your foot-notes you say that 1 3/4 is too close spacing for frames; that in reversing, changing ends, or changing from hive to hive, they will not match. Now, I do not count my hives by the hundreds, but I have known what it was to have the care of 300 hives per year, and not less than 175 any one year for the past 11 years, and I have handled those 1 3/4-wide end-bar frames, and

they were reversible, by the hundreds, for the past 8 years, and I have yet to find that trouble of not being able to change them from hive to hive, end for end, and from bottom to top. I did find plenty of trouble with all that were $1\frac{1}{2}$ inches wide, and, as Mr. Hawk says, there is an invitation to clougate the cells for honey with the $1\frac{1}{2}$ -wide end-bar. Before reversing-wires came into common use I let my top and bottom bar project $\frac{3}{4}$ at each end; rabbets were used at the top and bottom that were detachable, the hive being reversible as well as the separate frame, making a space above and below the frames. A reversible frame without a wide end-bar loses half its worth, not only with me but with many others. The space at the ends of the frames is worth as much for its winter benefit in preventing frost at each end of the hive as it is worth for moving the hives from apiary to apiary, or from stand to stand; the same projecting arm, and $1\frac{1}{2}$ -wide end-bars has been the main feature of the shallow hives with frame of inside measure of $4\frac{1}{8} \times 17\frac{1}{8}$, and double rabbets that were taken from the half-story surplus frame of J. H. Nellis, in 1878. Several of us tried the $1\frac{1}{2}$ wide brood-frame for several seasons, and the $1\frac{3}{8}$ -wide side by side, and the troubles that disgusted us with the $1\frac{1}{2}$ frame were not found in the $1\frac{3}{8}$ frames. The first $1\frac{1}{2}$ lot of frames were made by accident; and when they chanced to come together they set us to thinking about the difference between them. I know of six apiaries where the $1\frac{3}{8}$ frames are used, and not one will take a frame $1\frac{1}{2}$ wide, and they would be thrown at you if you gave them to the apiarists. With the shallow $4\frac{1}{8}$ frames, inside measure, the $1\frac{1}{2}$ frame is too wide positively. There are 5 apiaries that I know of where both the wide and narrow end-bars are in use, and I know what their owners say; it is, "Give me the $1\frac{3}{8}$ frame every time." Some of them have been in use for eleven years, and the $1\frac{1}{2}$ frames have been planed down to $1\frac{3}{8}$ wide; but this much I am forced to say by practical use, and from years of use too—give me the $4\frac{1}{8}$ deep frame, 2 stories high. I am aware that there are twice as many frames to handle separately, and that it is twice the work to make them up; that they cost more; but when I can handle five hives of two stories each, in the same time that I can handle three that are of the L. frame depth, it will pay the difference in one season; then there is one point that was shown to me ten years ago this summer: Split the brood-chamber of an obstinate colony in two, and place your crate between them, filled with boxes full of full sheets of fdn., and your fdn. will quite often change shape before morning.

But here I must mention one point in reversing frames that several years' practice has shown positively true. If half the frames, that is, if alternate frames are reversed, the honey is more sure to be removed than if the whole are reversed, which is an objection to the reversing of a deep frame, and this same object is again shown in another form by changing places with the shallow frame-cases. The honey in the upper half of the top case is placed between the brood, which is an objection to the bees, and up to the sections it goes; and in the spring again it tells in building up colonies: reverse alternate frames, and the queen will surprise you with the increase of brood; and likewise by changing places with the shallow frame-cases, the empty space, like the honey, is brought between the brood. These things have been tried all

through the eighties by more than myself, and the reversing alternate frame has shown the difference here in the Grove Street apiary, and those of our near neighbors here in New Milford. We have whole cases of sections full of honey and capping, while our neighbors all around us are saying, "My bees are doing nothing." Our full cases that are capping are counted by the dozens, and there are only 75 hives in this apiary. The deep frame, when the whole set are reversed, will quite often cause the brood-chamber to be completely packed with honey, when, if alternate combs are reversed, it in all cases brings honey between the brood top and bottom of the frames. The bees don't like it that way, so they move it. H. L. JEFFREY.

New Milford, Ct., June 19, 1889.

Thanks, friend Jeffrey. I (Ernest) am quite sure you are right in regard to the $1\frac{1}{2}$ versus $1\frac{1}{8}$ inch spacing. I have been watching this very same thing very closely myself, and my observations confirm all you say with respect to it. I have noticed, over and over again, that even suspended frames, when spaced $1\frac{1}{2}$ inches from center to center, are bulged and distorted, generally, when the same frames spaced $1\frac{1}{8}$ are nice and even. The $1\frac{1}{2}$ -inch spacing, on account of the irregularity from bulging and bur-combs, makes it inconvenient, oftentimes, to change the relative position of some of the combs in the brood-nest. The bulged surfaces will often come together, and sometimes two concave surfaces. With the $1\frac{1}{8}$ -inch spacing, these difficulties, as you say, are scarcely noticeable. In regard to inserting the super between the two brood-cases, I will say that I have been trying that very same thing, with the Heddon hive. I *expected* that the bees would start filling out the foundation immediately. Although the colony is a fairly strong one, ten days have elapsed, and yet they have only just begun to work on the foundation. Here was an instance where theory seemed to be strangely at variance with practice. I can not understand it, because it seems strange that, with the brood on both sides, the bees should not connect the two with honey, especially when the queen herself is kept in the lower section by a queen-excluding honey-board. I feel almost sure that further trials will make theory and practice coincide. You intimate in your article that you have been using divisible brood-chambers clear through the eighties. You speak of using shallow frames made by J. H. Nellis in 1878. You have told us just enough about it to make us want to know more about it. It is pretty evident that you are an advocate of a shallow brood-frame; and as you have used them for a good many years, your experience might be interesting to the readers of this journal.—You say that a reversible frame, without an end-bar, loses half its worth, on account of its advantages for wintering. If colonies are wintered in the double-walled chaff hives, or single walls in the repository, it seems to me the closed uprights would not make any material difference in wintering. The Vandusen metal corners are giving most excellent satisfaction here. The end-bars of these are not closed, and no gumming together.

BEE CULTURE AT JAFFA, SYRIA.

SOMETHING FURTHER FROM FRIEND BALDENSPERGER.

SOME years back I tried tobacco smoke on a very vicious colony of Cyprio-Syrians. I could subdue them with nothing, being dreadfully stung. I smoked them *ad infinitum*, and was astonished to find them tumbling over and over at the bottom of the hive. I succeeded in subduing them. I did the same to a very vicious colony of Syrians soon afterward, but never tried it again, as I had no occasion for it. Very vicious ones are either discarded or else worked in just the time of day convenient. I think during the hottest hours of the day no robbery is going on; and the gentlest way a man can handle them is to use plenty of smoke to begin with before opening the hive. Tobacco smoke is the only remedy I know of to get down the *braula cæca*, which is often met with on bees. A queen-bee having often a number of these parasites, I pick up the queen by the wings and give her two or three puffs, and the little fellows will tumble down dead. Picking them off with pincers is very trying, as the animal does not keep quiet for a moment, but rushes about, the body particularly, when disturbed; the smoke does not injure the queen. Tobacco-blossoms also give honey, which has a slight taste of tobacco. I think the habit of smoking bees with tobacco originated with pipe-smokers (in Germany), as it is very easy for a tobacco-smoker to light his pipe, give a few puffs, and continue the use of his smoker at his pleasure. In Palestine tobacco is used very extensively, in cigarettes, pipes, and the well-known hubble-bubble, the arjelah, or water-pipe. A water-bottle has a stem of copper fitted to it with three openings—one in the water, one at the head where the tobacco is put, and one in the empty space above the water. The smoke, being drawn through the water, gets purified, and continues its long way through the various-colored leather tube, corded with silver wire, having a length of several feet, into the mouth. Bee-keepers here never use tobacco smoke for their bees. Horse or cow manure is the only fuel for smoking the bees, through an old water-jar, having a small hole at the bottom. The smoke is blown by the mouth—a difficult process. How thankful should we be to Mr. Quinby for giving us such a comfortable smoker! In bee-keeping for women, Mrs. B. supposes it quite work enough to do the necessities without looking for the pleasure of carrying them about for fun, as Mrs. Chaddock tells us. My wife generally holds the smoker while I handle the bees or shake them off for the honey, which I put in empty hives on a wheelbarrow beside me, which, though very clumsy in comparison to the one you advertise, still does the business well, taking four hives with 18 frames each. As soon as extracted, the empty frames are brought back and distributed, if possible, before sunset, as experience has taught many a bee-keeper never to handle bees after that. Robbers don't trouble us as long as honey is coming from the flowers; but as soon as the honey-flow is over, they are a trouble, it being impossible to work more than an hour at a time; then we stop again till they are dispersed. They also defend their hives well against intruders.

I suppose there is no established rule as to the age queens continue to lay well. Very much depends on their having been in a nucleus or very

strong colony, and also whether they have passed good honey-seasons, obliging them to lay extensively. Revising the apiary during April and May, being an interval with very little honey-flow, I try to put away such queens as seem to go back or stand still in brood-rearing, as we want a good number for the thyme-blossom. I took away the old queens at some hives, but found more of them had either raised another one, killing the old queens at once, and in one case they kept both queens; but they have finally done away with the old one. A hive having 9 brood-frames and upward may be considered a good one with us. Less than 9 frames is a poor layer in a season when pollen is coming in plentifully, and stimulative food being given. But then, again, you can't tell exactly when the queen stops laying, as you may look in for three weeks or more, finding an increase of one or two brood-frames each time; all of a sudden they stand still. From 15 frames you are tempted to take away one or two, and find the next time only 11 or 12 frames. I never clip queens' wings, but I keep a record of them all, and find I am always, or nearly always, well informed, as the trace, even, of a superseded queen is easily known. Take all in all, I think the end of the second season is just the right time to raise new ones, the exception also being for longevity the third season. Some queens will never be superseded by the bees—they live and die together.

A friend of mine came around the other day, and I read to him "Dot Happy Bee-man." As we both talk German, we laughed till our "schtomacks went schplitt."

Drones fly out and congregate on afternoons of warm days, as we frequently see. I have not yet observed whether they congregate at some particular point year after year, although I heard their loud roar one season, day after day, above the road I crossed to go to the apiary, but never could I distinguish them.

"All our eggs in one basket and too many irons in the fire," seems to be very general among bee-keepers; in fact, it seems as if most bee-keepers concluded, after a few years' trials, and hard trials too, that it is better to put "several irons in the fire." Being of the number, I must state, for the benefit of new comers into the bee-fraternity, they should not rashly do away with one business before having well grasped the other. When we began bee-keeping, all other occupations were discarded, to our great detriment. Slowly but surely they are taking their respective places again. What has been rejected is welcome again. Most bee-keepers live in the open country—at least they ought to for the greater benefit of their bees, and thus have an occasion to put up with live-stock, which comes in very handy at times; besides raising a few vegetables for the kitchen, this will help us a great deal to get along in a poor season. Since I find the question so largely discussed by many fellow-sufferers, I fully sympathize with them.

Our receptacles for holding extracted honey, come all the way from America to Palestine, and we find them a good deal cheaper than any thing that can be had here. I guess some of the readers of GLEANINGS will be astonished to hear it when I tell you that a thoroughly cleansed petroleum-can holds 50 to 55 lbs. of honey, and does the same service as new tins, and seldom have our customers had to complain about petroleum taste; this also was in former years. We take two petroleum-

cans and pack them into a petroleum-box, paying 5 or 6 cents each tin and box, soldering costing 7 cents each tin; nails and hoop-iron around the box, 3 to 4 cents, making a total cost of 36 cents for 100 to 110 lbs. of honey. If our California bee-friends could utilize the same, they could pack very nearly 3 lbs. of honey for a cent instead of one cent a pound, as mentioned on page 765, GLEANINGS, 1888. The tins are thoroughly cleansed by putting ashes and water, to stand a few hours, in the tins, and occasionally shaking them; after having rinsed them with fresh or warm water, a few drops of alcohol, lighted, finishes the whole. Can they not be had in their own country at the same rate, or cheaper, than some thousand miles away from their starting-place? PH. J. BALDENSFERGER.

Jaffa, Syria.

It is very interesting indeed for us to know that, away across the ocean, you have just about the same experience and difficulties we have to meet here. I am glad that you enjoyed friend Secor's poem. I felt a little anxious to know how it would strike our German readers. I hope that you and your friend both recovered after reading it. So you enjoy raising vegetables, as well as myself. You speak about the petroleum-cans of California. Why, my friend, the most common object to be found in any part of California is those empty petroleum-cans, and they have been for years utilized, or at least a great many of them, for honey-cans. Our carload of honey that came from California was put up in just that way. Even brand-new cans can be used now, at considerably less than a cent a pound per package. We now sell two of the cans, packed in a box, the whole arrangement brand-new, for only 65 cents, in 100 lots. Friend Woodberry, of Glendale, Cal., gets rid of the coal oil by simply making a hole in the corner, opposite the screw cap. After stacking them up in the dooryard for several weeks, the oil is entirely evaporated. There must, however, be two openings.

WHAT IS THE FINEST HONEY?

PRESIDENT MASON ANSWERS SOME HARD QUESTIONS.

THESE questions have been handed me to answer in GLEANINGS. The first is, "Is clover honey superior to all other honeys? and if so, why? What makes it so?"

This question might be answered by the word *no*, and truthfully so by a great many lovers of honey; and then others would just as truthfully say *yes*. If a person's taste or preference is to constitute the basis for judging, we can have about as many negative and affirmative answers as there are kinds of honey. Some have so strong a preference for buckwheat honey that all other kinds are not worthy to be compared with it, and some parties in this region think nothing in the line of honey is as good as some kinds of honey-dew.

To be a first-class judge of any thing requires a certain something that I don't know how to describe, and which but few seem to possess. An illustration has just come to my mind. I'm almost afraid to give it, for I may be wrong; but that isn't what I care so much about. Our sisterhood of bee-

keepers may take me in hand, and give me a good shaking-up, but I'll run the risk.

For several years I've had charge of what is known as the "exhibit of canned goods," at the Tri-State Fair at Toledo. It consists of canned fruits, preserves, pickles, etc., and it is quite an extensive display; and I have found it quite difficult to secure competent judges. It has been my experience, that, as a rule, it is somewhat difficult for ladies to agree as to which specimen is entitled to a first premium, and this is my reason: Each one will "positively declare" that the one that comes the nearest to her taste, or to what she has been accustomed to have, is the best, and does not take into account certain qualities that make it far superior to any other specimen.

Bee-keepers would scarcely be ready to admit that such as prefer buckwheat honey to all others, are good judges of honey, unless that preference is made subservient to *good judgment*.

In "Langstroth on the Honey-Bee," recently revised by the Dadants, it is said that "The whitest and best-flavored honey . . . is that gathered from white-clover blossoms," but no reason is given why it is best-flavored. I believe that white-clover honey is the best, not because it is the whitest or has a better flavor: for to me basswood (linden) honey is the best-flavored; and to others, raspberry, buckwheat, mangrove, orange, or some other honey is the best-flavored. I have had hundreds of pounds of basswood honey that was whiter than any white-clover honey I ever saw. There is something in the composition of clover honey that makes it more satisfying to the taste, that I can not describe, and is beyond the "ken" of science.

The second question is,

WHAT SHOULD GUIDE JUDGES IN JUDGING HONEY?

If judging honey at fairs is what is meant, it might be said that the premium-list should be the guide. For instance, the Buffalo International Fair premium-list says: "Display of comb honey, largest and most attractive," and the same in regard to extracted honey. In these, color and quality are not taken into account.

In the next premium it says, "Sample of comb honey." Here color and quality are the leading objects, and quantity and attractiveness are subordinate. Good judgment is quite a desirable commodity in judging honey.

The third question is,

IF JUDGING BY POINTS OF A MAXIMUM OF 20, HOW WOULD YOU ALLOT THE POINTS?

I don't think I would use a maximum of 20 points in judging honey. I should prefer not less than 30 or 40 points for extracted, and 100 for comb honey. For extracted honey, take into consideration the color and quality, the receptacle, and attractiveness of the display.

For comb honey, consider the size¹, shape², color, and cleanliness of the sections³; color of honey⁴; quality⁵; fullness of sections⁶; how filled at the edges⁷; evenness of comb⁸; empty cells⁹; general appearance¹⁰.

Judging by points takes more time, but will generally give better satisfaction than any other method, and can be applied to most things exhibited at fairs. The number of points can readily be arranged on any article by any person competent to act as judge.

A. B. MASON.

Auburndale, O., June 26, 1889.

Many thanks, friend M., for your valuable

hints. My opinion is, that people follow in certain ruts a good deal by the force of habit. It is so in selling honey. A certain style of package gets into the market, and people take a notion that they can not have it in any other shape; and sometimes it takes a good while to make a change. Basswood honey is certainly whiter than clover honey. I do not know that I ever heard anybody call clover honey handsomer, so far as looks are concerned, than basswood.

SWARMING.

THE THEORY OF ITS CAUSE, AND HOW IT MAY BE PREVENTED.

WHAT causes the swarming spirit of a colony? is a question not fully answered as yet. I will hereby give my theory, and I think it is as new as it is correct.

We know, that, 21 days after the egg is laid by the queen, the young worker-bee will gnaw out of the cell. Two days later it commences to work, but inside of the hive only. About 16 days later she commences to gather pollen and honey. In summer time the worker bee will generally be dead 27 days after the first flight; so we see that the proportion of brood, house-bees, and field-bees, is 23 to 16 to 27, in the normal state of a colony. Of course, this is correct only if the queen has laid the same number of eggs daily for some time. In early spring, when breeding commences, no house-bees are in the hive, and the older bees have to do their work. The amount of brood is by and by increased, and the proportion of brood to house-bees gets gradually nearer to the normal condition. As soon as the queen has laid, for more than 23 days, as many eggs as she possibly can, we have the normal condition, and the colony is on its highest point of prosperity. The growing number of honey-gatherers has meantime filled the empty cells of the hive partially with honey, and consequently the number of eggs daily laid by the queen is by and by decreasing.

It makes no difference whether the greatest number of eggs laid by the queen is attributable to her fertility, or to the room in the hive devoted to breeding, or whether the number of eggs laid is, later on, decreasing from any other cause; we always have the fact that hereby a surplus of house-bees is in the hive at a certain time, because more young bees will come from the cells as the queen lays eggs. These young bees are desirous of feeding larvae, but not all of them can possibly do so; and this condition of a colony starts the swarming impulse. The desire of young bees for more brood causes it. As much as possible, prepared food is given to the queen, and so she is induced to lay eggs in the started queen-cells, and a swarm is the consequence.

This theory explains every case of swarming coming to my notice, and the different ways by which swarming can be prevented to a certain degree. We know of

DIFFERENT WAYS TO PREVENT SWARMING.

1. If we remove some capped brood at the right time, and put empty combs, or, still better, foundation, into the brood-nest, we induce the queen to lay more eggs; consequently the house-bees have more work to do, and the surplus of house-bees dis-

appears. The next day fewer young bees will gnaw out of the cells, and the house-bees get less again, relatively to the brood. So this is a very good preventive of the swarming fever till the former condition of things reappears.

2. If we take some bees from a colony we get mostly house bees, because the field-bees go back to the colony. So this will prevent swarming for some days.

3. If we give to the house-bees more work to do, we can prevent swarming; so by cooling the inside of the hive. Then more bees are necessary to cluster on the brood, and swarming may be prevented for some time.

4. But the house-bees are the comb-builders too. If we give them occasion to build new combs near the brood-nest, swarming may be prevented in most cases, especially if the bees build combs for the purpose, that the queen may lay some eggs in them (Simmins method). These combs are clear profit to the bee-keeper. Why, I will show presently.

5. If we work our colony for extracted honey, and extract the honey from the combs in such a way that the queen always has plenty of empty cells, we shall have no surplus of house-bees, and swarming can be prevented. But we have to consider here, that a very strong colony needs relatively fewer brood-bees than a weaker one, so a strong colony may have a surplus of house-bees, if the proportion of brood to house bees is even not smaller than 23 to 16. So a very strong colony may swarm nevertheless, while a weaker one will not.

6. A moderate honey-flow which by and by crowds the brood, is just the thing to cause a surplus of house-bees, and so induces swarming. A very good honey-flow crowds, of course, the brood also; but the young bees will find plenty of work to do to prolong the cells, to cap the honey, and to evaporate the rapidly coming honey. Such a very good honey-flow gives plenty of work for young and old bees, and they pay very little attention to the brood.

I said that a surplus of house-bees will build combs at no cost to the bee-keeper. My theory is as follows: All the young bees feed themselves plentifully with pollen and honey, for the purpose of feeding the young larvae. If a surplus of brood-bees is in the hive, some of them will not find larvae to be fed; the larval food, or chyle, accumulates in the stomach, and will go through the stomach-wall into the blood. A surplus of blood is just the condition by which wax is secreted; consequently a surplus of house-bees causes wax secretion. If room and the necessary temperature are in the hive, new combs will be built; if the bees have no room for this purpose they build brace-combs, or thick wax lumps, on the top-bars of the frames, or they cap the honey twice as thick as usual. A newly hived swarm has no brood, consequently always a surplus of house-bees—at least the first eight days. In this time a swarm builds combs very rapidly, and at no cost to the bee-keeper, because this wax is secreted anyhow. We can observe this if we have a small swarm (especially an after-swarm) in a large hive, and the outside temperature is cool at night time, so that the cluster of the swarm is much contracted. We then find a great number of wax shreds on the bottom of the hive. This wax is secreted, but the bees can't use it, because the cluster is too small, and outside the temperature is too

low to form that wax into cells. If we give empty combs only to a swarm, this secreted wax is formed into brace-combs and wax lumps. The proportion of field-bees to the brood and house-bees is important too, and I hope to write about it in another article.

L. STACHELHAUSEN.

Selma, Texas.

Your suggestions are much in the line with those of our friend Hasty and Dr. C. C. Miller, although you have carried them a little further. I have often noticed the waste of wax by way of droppings on the bottom-board, brace-combs, and little lumps scattered about the combs where they were not needed, and extra cappings to the cells; sometimes extra thickness to the walls of the cells; and I have many times been impressed by the fact that these bees, were an opportunity given them, would build combs at no expense to the bee-keeper. It is along in this line of reasoning that friends Doolittle and Hutchinson conclude that bees will produce more honey, where they are obliged to build a certain amount of comb, than where the combs are furnished them. Other experiments, however (but they may be under different circumstances), indicate exactly to the contrary. See page 337.

BILL-BEETLES.

THE OREGON BEE-KILLER.

I HAVE received from Mr. J. J. McGowan, Swan Quarter, several of these weevils. They were all packed in a strong wooden box, with cotton, and every one reached me in good order. The number and excellent condition delighted me. Mr. M. wishes me to discourse upon the natural history of these insects.

These are known in the South as bill-bugs; but bill-beetles would be a more correct term. They feed upon the corn, and often do great damage. They insert their beaks and often destroy the young plants. This is a species of *Sphenophorus*.



I send a drawing which shows its natural size, form and general appearance. As will be seen, these beetles have a proboscis, or snout, and so are weevils. A species of *sphenophorus* (*S. robustus*) is said to

destroy corn in South Carolina and Alabama. It is also stated that this weevil breeds in the corn. It is black, and a little larger than this one. The species sent by Mr. M. is six-tenths of an inch long, and of a rusty gray color. The entire back is punctured. I can hardly suggest a remedy for these pests, as I have never had opportunity to study them.

OREGON BEE-KILLER.

Mr. R. W. Keeney, Pilot Rock, Oregon, sends me an asilus fly which much resembles the Missouri bee-killer, except that it is only about two-thirds as large. Mr. K. says, "These flies destroy my bees. They can kill any thing that flies. He often launches on hoppers three times his own size, which he can easily bear away. He does not eat but sucks the blood from his victims. As soon as he has sucked one dry he drops it and is ready for another."

Mr. K. thinks this fly about half grown. This is a very common error. Insects, after they have

wings, do not grow. The growth takes place while yet larva. All bee-keepers know that bees do not grow after they are mature. Of course, a full bee is larger than an empty one. Female insects, like queen-bees, may enlarge a little when in the height of laying, and shrink a little as the ovaries rest from egg-production. I presume this asilus is a new species. If so I will name him *Asilus Oregonus*, or Oregon bee-killer, alias Oregon robber-fly. The fly is gray, and about one inch long. See my Manual on "Robber-flies." These flies were somewhat broken. I hope Mr. K. can send me more in good shape. A little cotton prevents breakage.

Agricultural College, Mich.

A. J. COOK.

NOTES FROM THE KEYSTONE BEE-FARM.

NON-SWARMERS NOT NON-SWARMERS AT ALL.

WE have (I mean my wife and I) an Italian queen that I bought of Mr. Frank Boomhower two years ago, that had never swarmed. Our other queens have swarmed excessively. Last season I reared a fine lot of queens from her brood, and these also preserved the traits of their mother during the season. Thinking we had a big bonanza in the line of non-swarmers, we concluded to advertise through GLEANINGS, "Warranted non-swarming queens at regular prices," and I had actually written out what I thought was an attractive advertisement to forward for the June 1st issue, when our non-swarmers began to swarm, and now, June 17th, they have all swarmed. Even the original Boomhower queen has followed the example of her beautiful daughters. We have not tried to check swarming, because our strongest stocks are not storing any surplus, on account of the extremely wet and cold weather.

We have a Carniolan queen that I bought of Dr. Morrison last June. Sept. 1st she led out a large swarm. On the evening of the 8th, as I was making my usual round through the apiary I found, at the entrance of her old stand, seven young queens. They paid no attention to each other, but were determined to get back inside of the hive, which the workers would not allow, but would gently lead them out again. We had at that time a few queenless nuclei, where I ran the outcasts in, and five of them are to-day among our best laying queens.

From present indications we shall not secure any surplus until buckwheat and fall flowers, because the weather will not permit our bees to more than live and keep up brood-rearing from clover, and we are out of the range of basswood, which is four miles away. By way of experiment I think we will move a few colonies up to the basswood.

The Ignatum tomato seeds came all right, for which accept our thanks. We succeeded in getting 23 plants from the 25 seeds which the packet contained.

S. W. TAYLOR.

Harveyville, Luz. Co., Pa., June 17, 1889.

You have given us some very valuable facts. I have several times been told that certain colonies never swarmed. In fact, many have written that they had certain queens whose bees never sent out a swarm, and that young queens followed this peculiarity. I have invariably told such people to be slow in drawing conclusions; for my im-

pression was, that if a season should be just right for swarming, and the swarming mania should get into the apiary, very likely these non-swarmers would get a going, and swarm for certain, when they once got at it. Your story verifies the above. You should still try this queen and her progeny; and even if you find they are less liable to swarm than your other stocks, you are making some progress.

ALSIKE NOT A HYBRID.

SOME OF THE REASONS WHY IT IS MISTAKEN FOR A CROSS.

IN the issue of June 1st, Chas. L. Gough seems to have settled conclusively (to himself at least) that alsike is a cross between red and white clovers. I think it very unfortunate that that mistake was made by our botanists when they gave alsike its botanical name; and the sooner it is given another and less misleading one, the better. In your remarks to the article by friend Gough, you say: "If the seed you sowed contained no white clover at all, the phenomenon you mention is a mystery," etc.

To say, "There never had been a seed of white clover on the ground," as friend Gough puts it, is a pretty strong assertion; and if so, then the phenomenon would indeed be a mystery.

Last fall with us was quite wet, and this year white clover is very plentiful, especially where the ground was pastured closely. Alsike and red clovers do not stand pasturing like white clover. Clover seed will lie in the ground for many years; and when the conditions are favorable it will germinate. In the discussion of this subject some time ago, where friend C. F. Muth was interested (he having sold alsike clover seed, and the purchaser claimed that it came up red clover), I think the case would be of easy explanation if one knew the history of the ground for several years previously.

The hay I feed is mostly clover hay, and, of course, there is a large amount of seed in the manure. Some years ago I made a hot-bed, and the next year I used it as a cold-frame in raising radishes, etc., and the next year I threw the manure out, which was by this time thoroughly rotted, and the clover came up in it, to use a common expression, "as thick as hair on a dog's back."

Several years ago I broke up a hillside, sloping to the southeast (it being convenient to the house), and planted it in sugar corn, beans, tomatoes, etc.; the lower portion, which was more level, to potatoes. The next year I spread considerable manure from the horse-stable on it, and plowed it again, and plowed some ten or twelve furrows further up the hill. I planted it in peach-trees and in sugar corn, tomatoes, etc.; this year, also, the upper part, or sod, I planted in cucumbers. I cultivated as usual; and after my crop was "laid by" I sowed it in alsike clover (I had a little seed left from the spring, which I got from C. F. Muth). The next year I had mostly red clover; but above where I put the manure I had a beautiful patch of alsike, and below the manure it was mostly alsike.

Some three years ago I "stirred" with a double shovel some ground that had been in potatoes the previous year, harrowed nicely, and sowed in alsike and timothy. It was too late in the spring, and it turned very dry; and although there is oc-

asionally some alsike and hardly any timothy, I don't think the alsike and timothy turned to ragweed and briars, although I have plenty of them. I don't see any necessity of making a mistake in the seed of alsike, and white and red clovers, as they are so different in appearance.

A year ago this spring my brother sowed timothy and alsike on a field of wheat. On account of dry weather it presented a rather poor prospect when the wheat was cut; but the autumn rains helped the appearance, and now he has a fine field of alsike and timothy; and in places, where he hauled manure on the wheat ground, at a little distance it appears almost entirely red clover; but on examination there is alsike there also.

Georgetown, O., June 14, 1889. S. C. GORDON.

The point you make in regard to the dissimilarity of the seed is a good one. Every bee-keeper should be so familiar with the looks of the seed of all the clovers that he will not make a complaint that he has been humbugged in buying the seed. If the seed does not look as you think it ought to, send it back instead of sowing it and then complaining of the seedsman.

A NOTE OF WARNING.

A NEW BEE-DISEASE WHICH THREATENS TO ANNIHILATE WHOLE APIARIES IN CALIFORNIA.

YOU will doubtless remember my letter of last winter, about the new bee-disease. If you are not too much pestered by ignoramuses, and entirely out of patience, I will try to show that my trouble was not due to a local cause, but was the forerunner of what threatens to seriously cripple the bee-keepers of the State. With the opening of spring I find my entire stock of 170 stands "gone where the woodbine twineth," and the monster making serious inroads among my co-laborers. From what little I am able to gather, I believe the same thing is at work in Inyo, Ventura, and San Bernardino Counties. Developments are a little different now, as to symptoms, from my previous description; viz., of mature bees, abdomen distended, and hard trembling; listlessness, death; brood baldheaded; many dead, two-thirds or fully developed sticking in the cell; queen a failure, and moth completes the work of destruction. So far as I am able to learn, there has not been over two per cent of natural swarming through apiaries in this county. We have arrived at the goal for which our eastern brethren sigh—non-swarming; but like the man whose cow had learned to live without eating, death closes the scene.

I was sorry you apologized to Dr. Mason, for I saw by the twinkle of his eye, in his thought he said, "Now, I have got A. I., and I will just fix him this time, because I just know what I am talking about." That is the style of men that we want to keep talking just as long as they are in good humor; and the doctor has lots of that. Now, my purpose in writing to you is to hook on to the doctor or Prof. Cook, or some other good-natured scientist, who would take an interest in an investigation; also to stir some of the bee-men of this State, and sound the note of warning ere it is too late, if it is not already.

I should like to know what it would cost to make a microscopical examination and analysis of the

honey, etc. Although I am not a scientist, and have no facilities for fine work, yet I will venture an opinion that a fungus or animalcule resides in the honey, or about the hive. This State is overrun with minute pestiferous things, roaming about seeking whom it may devour, and it gets therein all cases. If I mistake not, this thing of which I write will, ere the new year, make a pretty clean sweep of the principal apiaries in this county. I am melting combs and clearing up, with a view to quit the business. Others concur with me in these views of the situation.

W. A. WEBSTER.

Bakersfield, Kern Co., Cal.

It seems to me that you are taking a rather dismal view of the matter. I may be mistaken, but I can hardly think that this one you mention is any thing more than a temporary matter. We should be very glad to receive reports from your neighborhood in regard to it. There is one thing, however, that does disturb me somewhat. When I saw the ravages made by the parasite on the orange-tree, and realized how plentiful were house-flies even in January, it occurred to me more than once that in a climate without frost and snows, insect or fungus enemies can get a going; and who shall say where the end will be without any frost to cut it short, as it cuts short the yellow fever in Florida?

BEE-KEEPING IN CUBA.

CONTINUED FROM LAST ISSUE.

IT will be seen that we have a steady flow of honey during the entire year; that there is at no time a complete dearth of honey, such as occurs in all of the States at times; that during at least eight or nine months of the year, the bees obtain more honey than they need for their own use; that the flow commences very slowly, gradually increasing for about four months, then as gradually decreasing for the same length of time.

Cuba is like all other countries in the fact that, while many different kinds of flowers yield honey, the surplus is obtained from two or three kinds only. At least three-fourths of our surplus comes from the bellflower, or *bejuco campana*, or *bejuco aguinaldo*; a correct description of which, but not a correct engraving, will be found on page 767 of GLEANINGS for 1886. The habits of this flower are very peculiar, different from any other honey-yielding flora I know of, it being a daily and not a constant flowering plant. The flower opens out in the morning, continues in bloom the larger part of the day, then closes up, wilts, and finally drops off, having lasted one day only. The most peculiar thing about it is its great irregularity in amount of bloom from day to day. One day we may not be able to find a hundred blossoms in the course of an hour's search, while on the next the fields and hedges may be white with bloom; the next day, half as many; the next still less, and so on. The daily yield of honey fluctuates in almost exact proportion to the amount of bloom. A study of the table of daily yields during December and January, as given on page 540, may not only be interesting to those who are in the habit of keeping such records, but shows very accurately the amount of bloom each day.

The next in point of value to the campana is the royal palm (and a royal tree it is too), which yields honey at all times of the year. I doubt whether we ever get much surplus from it, but its habit of yielding some honey steadily during the summer months, when few or no other flowers yield any thing, makes it of great value to the Cuban bee-keeper.

There is also a species of Spanish needle which commences to yield honey in September, and is still in bloom. A detailed description of the minor honey-plants here would not be valuable to your readers, as they are unlike any in the States.

Bell-flower honey is of excellent quality, in color about like basswood honey; body nearly or quite equal to white-clover honey, while in flavor it ranks next, in my judgment, to that honey. The flavor is more pronounced than is that of mangrove honey, but not as sharp or aromatic as either basswood or California honey. Honey from other sources is dark in color, of good body and fair flavor for dark honey.

Brood-rearing commences to increase about Christmas, increasing rapidly in amount until hives are full of brood and bees. All good colonies keep up brood-rearing during the entire summer and fall; but such colonies as do not gather their own supplies usually cease nearly all brood-rearing, except in lower stories, during the summer months, commencing again when the fall flow of honey sets in. The apiary was at its lowest ebb the first part of September, but from the 15th of that month until Nov. 1 it built up as rapidly as I ever saw bees build up anywhere at any time of year. About Nov. 1, queens generally commence to take their annual rest, but they do not entirely cease egg-laying at any time. We had to depend on the bees that were hatched out during October and November for our honey-gatherers during the main honey-flow. We have had so little natural swarming here that we know little about the time for that, except that the few swarms we have had, less than 20 in all, came out in February, March, April, May, October, and November. Probably having so many bees in one place is the reason why there has been so little swarming.

Some of the advantages here are the entire absence of swarming, and the small amount of brood in upper stories during the main extracting season. Nearly all can understand the value of these conditions. Queens are raised every month of the year; but it isn't best to raise any more than we can help during November and December.

Climatic conditions in Cuba make it necessary to work bees under sheds. Ours are covered with tiles; those at the Casanova apiary, with palm-leaves. The last are the best for all reasons, except danger from fires.

This last year has been the first one that any fully established apiary here in Cuba has been run for extracted honey alone. The Casanova apiary not having been, since it was built up, in charge of an experienced bee-keeper, and this one was run for increase the first two years. I have not only had to learn the peculiarities of a new climate and new location, entirely different from any thing I had previously known any thing about, but I couldn't follow closely in the footsteps of my predecessor, as he always worked for increase while in Cuba, and we cared only for honey this year. The work has been almost as fascinating as it was when first com-

mencing bee-keeping 20 years ago; but the result has been far from satisfactory or up to expectations, as can readily be seen by referring to back numbers of GLEANINGS, as follows: Page 744, 1883; page 593, 1884; pages 192 and 381, 1885; pages 621 and 767, 1886, and pages 506 and 611, 1887.

Now, what has caused this partial failure to secure a paying honey crop this year? On the correct solution of this question depends the future of bee-keeping in Cuba. Mr. Dussaq attributes the failure largely to the abnormal season, which has been as much so here in Cuba, as the past winter was with you in the States. While that unquestionably accounts for a part of it, I am inclined to think it is only a small part. There is no question whatever in my mind, but that we had fully twice as many bees here this year as were necessary to gather all the honey in our field. If Mr. Dussaq is correct in his opinion, this will not ordinarily be the case. I have watched the bees closely during the past year; have studied the history of the Casanova apiary for six honey seasons, and this one for three; and it is difficult to resist the conclusion that from 100 to 200 colonies of bees will store fully as much honey in one location here as will 500 or 600. There are probably locations in Cuba where this rule doesn't apply; but I am afraid that it does in this section of the island. Of course, a single season's experience doesn't positively prove this or any other opinion to be correct, and we are now working so as to have as many strong colonies as possible in our 500 hives at commencement of next honey harvest, and will give the matter a thorough test. I hope the result will show that I am wrong, as I shall be glad in this case at least, for the sake of those who have invested so much money in the business here, to part with some or all reputation I may have for possessing a clear candid judgment on bee-matters.

Notwithstanding the very medium results so far obtained, I find Cuba to be the most wonderful honey country I know any thing about, and have no doubt that bee-keeping can and will be made a decided success here, when undertaken under proper conditions and in a proper manner. All of my observations, as well as all evidence I can get from others, go to show conclusively, I think, that apiaries not too large for their location can be relied on to yield from 200 to 400 lbs. of honey per annum each colony, at a smaller relative expense than in the States. All ideas of immense apiaries in one location must be given up, and the same methods adopted as respects scattering bees as has worked so successfully with Messrs. Hetherington, Manum, France, and others, in our own country.

There are many things about our living here, about details of management, etc., which I could tell that would be of material value to any one intending to handle bees in Cuba, and would be interesting to many of your readers; but I hardly think it would be of enough value to most of your readers to pay for the space it would occupy in GLEANINGS. If you think differently, say so, and I will try to jot some of them down between this and the busy season next fall.

Havana, Cuba, June 1, 1889. O. O. POPPLETON.

After reading your first paper on bee-keeping in Cuba (see last issue, page 539), I at once dictated an answer; but Ernest, overhearing me, remarked that the article was to be concluded, so my answer was not

put in last month; but with this explanation I will give it now. Here it is:

Now, friend P., you have, by your above report, made me wonderfully inquisitive. What do you do with a crop of honey amounting to 50,000 pounds? What is the quality? Where do you sell it, and what do you get for it? In your table I have not noticed more than 7 pounds per colony in a single apiary. A. E. Manum, away up in Vermont, gets over 30 pounds from a single colony in a single day. Now, will he please tell us how many bees were kept in the same apiary, or in the same vicinity, when he got that enormous product? Can't you arrange by irrigation or something else, so as to have honey every month in the year? and, finally, is there a spot on the face of the earth where GLEANINGS goes, where bees make honey every month, winter and summer? By all means let us have the details of management.

FINISHING UP CELLS IN THE UPPER STORIES OF FULL COLONIES.

J. D. FOOSHE GIVES FURTHER PARTICULARS.

I RECEIVED GLEANINGS yesterday, and read carefully your comments on my article on queen-rearing. You express some doubt as to its working, except under the swarming fever.

I will say, that, when I first found it out, my bees had about passed the swarming fever. We had some beautiful weather here in April, but very few pretty warm days in May, consequently we had no swarming, or very little, in May. We had almost all we had in April; so when I first found it out there was no swarming; yet they worked out as fine cells as any natural-swarm cells I have ever seen. Any of mine will work out all I give them after the cells are started, and will work only those where the cells are started. I have not had a single one refuse to work them out. Where cells have been started I have had several built out since writing the article, and I must say that I have the utmost faith in the plan in any season of the year where the upper story has bees enough in it. I prefer placing a frame of brood of all stages in the upper story by the side of the frame of cells. They work only those cells out that are started, and no more. They never pretend to start another. Under the swarming impulse I don't know but that they might start more cells, but up to the present they have never done so. One main reason that I prefer to give the colony a frame of brood is, that we sometimes have sudden changes of weather; and you know where there is no brood in the upper story, bees are very apt to desert and go below if the weather is cool. With the frame of brood, the bees will remain above, or sufficient to care for cells and brood; and then, again, I think the frame of brood attracts more nurse bees, and perhaps the cells get better attention. It is a little strange to place a lot of empty cells in the upper story one morning, and go back the next morning to see what advance they have made on every cell, not leaving a single one untouched. So far as I can discover, they seem to start on them immediately. The cells that are started and transferred should be started on eggs that are just emerging into a

milky state, or will be hatching in five or six hours after giving to a colony to start them.

Coronaca, S. C., June 19, 1889.

J. D. FOOSHE.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PRODUCING SECTION HONEY ON BOX HIVES.

MR. ROOT:—I know it is a very busy time to stop to talk; but as you and most of the advanced bee-keepers have passed through what I am experiencing now, I thought a word of advice from you would be of great satisfaction. You may remember I told you that I was a rather small pioneer in the improved method of bee-keeping in this part of the country. I was made the object of many a smart joke on my crazy hobby; but my success in producing the nicest honey, and at the same time making some money, has turned the scale; there is quite an excitement springing up, and everybody appears to want to go into the bee-business. Men are coming from a range of several miles to get information and instructions how to proceed to get such honey, and as much of it, as I do, from a hive. I admit I feel ashamed that I know so little as a bee-keeper; but novices express themselves as being satisfied I know it all when they see my apiary with the beautiful white honey tiered up two or three crates high. Now, there is one thing I wish to consult you about, and it is a thing that has stirred everybody who has any kind of a gum, in these parts; that is, about using sections on common gum hives. I had a few such hives, and I made a crate to hold 18 one-pound sections, which are filled as nicely as on any hive, and the public have found it out, and many are coming to me for said crates, filled with sections to go on these gums, and they are running me out of supplies; hence the last orders. Now, is this a new thing, and am I responsible for breaking down the trade, by teaching everybody who has a gum, to produce section honey? S. DANIELS.

Pine Grove, O., June 22, 1889.

In our A B C book, at the close of the article on "Transferring," we gave a short plan by prying off the top of the old box hive and setting a Simplicity hive, filled with foundation, over it. It is true, there is nothing said about filling this Simplicity hive with sections, but the matter almost suggests itself, without being mentioned. In fact, it has been done a great many times, and the matter has been frequently mentioned in the journals.—Whenever any trade or occupation can be broken down by teaching short ways of accomplishing desirable results, by all means let it break. I think very likely that people who have bees in gums might do nicely in the way you suggest, and we thank you for calling our attention to it.

MORE EXPERIENCE WITH BEE-STINGS AND RHEUMATISM.

At my table, when eating honey, without any other conversation leading to it, a German friend, with much animation, told the following: "After the Franco-Prussian war I suffered rheumatism (as the effects of my soldier life) for three years, never able to work, and seldom able to walk. One fine

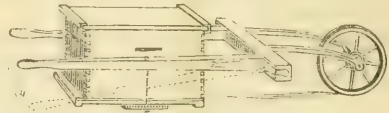
day in spring I coaxed them to carry me into the garden, and, sitting near the bees, I smelled honey and asked for bread and honey. The bees gathered around me, and, being left alone a short time, I tried to chase them off, and they stung me awful bad on the face and arms, fifteen or twenty stings before I got away. The swelling was terrible; but before it was gone I could walk; and when it was gone I was well, and never had rheumatism afterward, and immediately went to work." The name of this man is Henry Karstadt. I believe his statement. J. A. LOWE.

Hutchinson, Kan., June 28, 1889.

My friend, the above is very valuable; and from the numerous similar reports we have received, I am inclined to think that bee-stings are perhaps the best remedy for that fearfully stubborn disease, rheumatism, of any thing that is known. May it not be that the hot sun and open air have also something to do with it? I can readily understand how our poor friend K. should get stung in the way he mentions. The bees got enough honey from his bread and butter to put them into the right mood for stinging fearfully, just about the time it was gone. As he was helpless, he probably got a good sound bee-sting treatment, especially for the first dose.

ANOTHER HIVE-CART.

Seeing a cut in GLEANINGS of a wheelbarrow to lift and carry hives, I thought I would send you my arrangement. With it I can lift and carry the heaviest hives with ease. One handle is on a hinge, so it can be spread and closed up. The blocks and the handles go under the strips near the top of my hives.



WILSON'S HIVE-CART.

I think it could be fixed to go under the hives as well. The wheel is from a cultivator, and the springs from an old spring seat. A frame goes over the wheel to keep it from wabbling about, which it would do on the end of such a long spring. I have used this more or less for three years, and I think if it were perfected and made just right it would be quite handy. HENRY WILSON.

Clinton, Ill.

I will explain to our readers that our artist has not quite caught friend Wilson's idea. For Dovetailed hives, or hives whose bottoms may be fastened, instead of having a support under the bottom-board, a pair of blocks on the handles of the wheelbarrow fit into the hand-holes. With a movable-bottom hive, however, something must go under to keep the bottom in place, as shown in the cut. The frame mentioned, as attached to the springs to keep the wheel from wabbling, is omitted in the cut; and, in fact, friend Wilson has not made it plain just what this frame should be. A stout piece of flat iron, however, riveted to each one of the springs, and running over the wheel, with a sort of bow, would probably remedy the difficulty alluded to.

ARE THEY ONLY OLD WORN-OUT BEES, OR ARE THEY SOMETHING WORSE?

I mail you to-day some bees for microscopical examination, all dead in one hole, and alive in another. Our bees are dying by the thousands, and I have heard from 3 other bee-yards affected in the same way. It seems to affect the field bees most, judging from the fact of the wings of the dead and dying being ragged, and no dead bees are in the hives; drones are also suffering. The symptoms are a general languor, stupid dullness—in fact, they act drunk. When caught they seem to be unable to see, for they keep rubbing their eyes; and after a time, if the sun is shining, they will fly off. The honey-sac seems in all cases to be empty. They do not seem to die at once, but linger; and I am inclined to think in many cases they recover. They are scattered all over the yard among the grass, much the same as young bees after a swarm has issued. There is no tremble or shake to their actions, more than to chilled bees. All colonies seem to be affected. Clover is in bloom, and some sumac.

C. A. HATCH.

Ithaca, Wis., June 28, 1889.

Later.—Bees are not dying as much now as they were, with that peculiar trouble.

C. A. H.

Ithaca, Wis., July 4, 1889.

We are having a good deal the same state of affairs in our apiary just now; but I am inclined to think that it is nothing more than the fact that a large number of old bees have failed because their wings are worn out at about the same time. Another thing, I am pretty certain that the unusual amount of wet weather we have had for two months past has been unusually severe on the wings of our little friends. They came so near starving in June that they often ventured out between showers so much as to get their gauzy wings repeatedly saturated with rain. This would be quite apt to render the wings less durable.

IS IT TRUE?

While lying in the hospital here, I came across an item in the *St. Louis Republic*, of June 8, which I thought would interest you. I have clipped it out, and inclose it in this letter for you. I know nothing about the truth of the item.

E. HOSTETLER.

St. Louis, Mo., June 10, 1889.

The item referred to is as follows:

STUNG TO DEATH BY BEES.

Henry Wright, a farmer, living near Maud, in this county, was stung to death by bees at his home to-day. He had just started to this city, and was coming over a stile when the bees attacked him with the above result.

Shelbina, Mo., June 7.

Can not some one among our subscribers in the vicinity of Shelbina tell us whether the clipping is true?

A HORSE STUNG TO DEATH.

One of our subscribers from Australia, J. F. Johnson, Kyneton, Victoria, sends us the following clipping, taken from the *Melbourne Argus*:

EXTRAORDINARY ACCIDENT NEAR BRISBANE; A HORSE STUNG TO DEATH BY BEES.

An extraordinary accident occurred yesterday afternoon. A man was driving along the Bayswater-road, in the suburbs of Brisbane, in a spring-cart, with a number of hives of bees, when by some means he upset one of the hives. The bees attack-

ed the horse, causing it to bolt. After galloping for some distance the horse fell, and fractured its foreleg. The bees swarmed upon it, and soon stung it to death. So dense and vicious was the swarm of bees that the traffic on the road was suspended for a considerable time.

The facts may be exaggerated, but it will serve as a warning.

OWED TO P. BENSON.

I hav jist writ the followin' owed to P. Benson, wich I sen' fur publerkashun; to wit, viz:

When ere I tuk my GLEANINGS down
And got the "small fry" huddled round
Ter listen while I red,
The fust peace that must greetee hour eye—
Thur picturs, splained to each one bye,
Was what P. Benson sed.

P. has writ you menny er line,
An off his 'umor, we opine,
Has hit our funny box;
And that his poem on ther fly
Jist tickled till we'd almost cry,
You may jist bet yer socks.

And P.'s a genus, that he is;
An' when you git er rhyme of his,
Jist send the lines to me.
Of all the orthors that I mete,
None else has got the same concete
That 'umors with a bee.

An' doubtless P. spins from afar
His tails of myrth, with naught ter mar
His pleasant fancies fly;
And if ermongst the bees he thrid,
And they shud chide, you well mite bid
P. Benson a good-by.



THE HOME RUN.

For doubtless then tru 'umor'st find
Its instant vent not thro ther mind,
Nor by ther pens parade.
But P. would personate the fun,
And surely make a good home run
Without a poet's ade.

CHARLIE RYAN, *The Orange Poet*.

BEES AND FRUIT; A FRUIT-GROWER MAKES CHARGES AGAINST THE BEE.

There seems to be quite a prejudice in these parts against the honey-bees. See article published in the *Farm and Home*, of Springfield, Mass., June 15, which I inclose.

O. F. ANGELL.

The Dalles, Ore., June 24, 1889.

BEES SOMETIMES INJURE FRUIT

I see that the statement of the experiments of N. W. McLain, of Aurora, Ill., with honey-bees, is going the rounds of the papers as conclusive evidence that bees do not puncture grapes. As an ob-

server of the facts in the case, and a practical fruit-grower for the last 35 years, and with several colonies of bees quite a portion of the time, I am prepared to say that those experiments are not conclusive. Bees have striking peculiarities, and in none are they more peculiar than in their tastes. They attack certain varieties of peaches with great avidity, working through the skin and eating into the flesh even before the fruit is thoroughly ripe, while other varieties, to our taste sweeter and riper, are left untouched. Hale's Early is always a favorite with them, without reference to the supply of other food. Grapes they do not attack, except under certain conditions. These conditions apparently are that the fruit must be very ripe, the weather dry and warm, and other food scarce. They have sometimes destroyed, or rendered unfit for market, tons of grapes in our vineyards in a single day, puncturing the skin so that juice would ooze from several grapes in almost every cluster.

Lake County, Ohio. H. G. TRYON.

Friend A., I am glad you have called our attention to this matter. Mr. Tryon is not only one of the foremost horticulturists in the State of Ohio, but he is most excellent authority on any such subject. Perhaps after he reads over what I said some years ago about bees working on the peaches he may change his views a little. I quite agree with him in saying that Prof. McLain's experiments, to see if bees would eat fruit, amount to just nothing at all, and I was well aware of it at the time. Bees will not exercise their powers of pulling things to pieces when shut up in a wire-cloth house; and they may not exercise these powers, either, in the open air. If the experiment were made with all possible care, perhaps it would fail a hundred times; but for all that, I am satisfied there are times when bees destroy enough grapes to be quite a nuisance in a vineyard. I am aware, however, that they are blamed hundreds of times for what they never did at all. Perhaps friend Tryon is not aware that the bee-keepers and horticulturists of Michigan met in a joint convention some years ago, to talk over this matter. A great many grape-growers are bee-keepers also. Quite a number of them were present at this convention; but not one of them that I know of ever discarded bees because the bees troubled his grapes. Where both the grapes and the bees were his own property, he managed with very little difficulty so as to have no interference to amount to any thing.

MINERAL WAX; WILL IT COMPETE WITH THE ARTICLE FROM THE HIVE?

I inclose a newspaper clipping, cut from the *Southern Mercury*, published at Dallas, Texas, concerning a mineral wax. Can you tell us something about it?

W. A. CARTMELL.

Crowley, Texas, June 24, 1889.

A curious illustration of the treasures of the soil, often overlooked for a long time, is the discovery of mineral wax in Utah. It was discovered three years ago on the line of the Denver & Rio Grande Railroad, covering an area of 150 acres. Over 1000 tons a year are secured. It looks like the wax that is made by bees, and can be used for the same purposes. It is mixed with paraffine in making candles, and is used in the insulation of electric wires. It needs no refining for ordinary uses. The discovery is a hint to our land owners, that their farms often contain riches that are overlooked. The Pennsylvania farmers worked the oil-fields for generations without a dream of the wealth under foot.

I heard about the mineral wax when I was in California, and I believe that some samples were shown me; but I can not now

tell just where or under what circumstances. I think, however, some of the bee-men assured me that it would not answer for foundation. Will some of our friends in Texas, California, or Utah, give us more light on the subject?

CANNING CORN.

Some time since, I noticed a short article on canning corn. It said it is almost impossible to keep it from spoiling, and also expensive—too expensive for common practice. I will take the liberty of sending you a recipe for canning corn, that I have used with perfect success for five years, canning from 10 to 40 qts. each year.

Take the corn when it contains the most milk; cut carefully, so as not to get any of the cob, and can as soon after pulling as possible. To every 6 qts. of cut corn take one ounce of tartaric acid; do not can more than two quarts at a time, using acid in proportion. Your success is sure if you boil but 2 qts. or 3 pts. or 1 qt. in a vessel at a time. Have your right proportion of acid dissolved, and add it to the corn when the corn begins to boil. Boil the corn till done, using just water enough to cook the corn; do not have any juice left over when you put it in your can; close quickly. I cover the can with a little patch of muslin before placing on the cover. I prefer tin cans, and I do not have the sealingwax too brittle.

HOW TO PREPARE CANNED CORN FOR THE TABLE.

Remove the cover, drain off what little juice there may be, into a teacup, and save; pour the corn into a vessel; add sugar, salt, butter, pepper, and reserve the cream till you lift it for the table. Have dissolved in a cup a teaspoonful of soda. Add some of it, and let the corn cook slowly. Taste a kernel occasionally; as long as it is sour, add more of the soda water; boil the corn a good while. In case you should get too much soda into the corn, add some of the water you had poured off at first and saved; that is all the reserved juice is good for.

MRS. J. A. LOWE.

Hutchinson, Kan., June 28, 1889.

Very likely your plan will work, my friend; but is there not a good deal of fuss and bother about it, especially if one wanted to put up considerable? Our corn and tomatoes canned together, as described a year ago, have kept perfectly. The only difficulty we meet is, that the tomatoes are cooked fit for the table a good deal before the corn; therefore the corn must be separated from the tomatoes and cooked by itself, to have it real nice.

THE GOLDEN BEE-HIVE, AND BY WHOM PATENTED.

I see in GLEANINGS you are getting after the Golden bee-hive men. They threatened to prosecute me last season for infringements on the Golden hive, but I told the persons who told me, I had books to show the model of my hive. Mr. Henry Weaks, Dover, Tenn., has the county right for this county, and Mr. John Parker, same address, sells them for him. They sold to several neighboring bee-keepers. I have made some of the Golden hives, and have transferred and divided some for my bee-keeping neighbors. They furnished one of A. I. Root's cold-blast smokers and a little pamphlet with the hive. The book doesn't say any thing about the Golden hive, I think, but it is a treatise on bees. I have never read the book. The patent

was issued to D. Thompson, Nashville, Tenn., July 3, 1877, for a term of seventeen years. Your article on "Debt and Credit" I call excellent, for it seems to hit the nail square, and drives it up. I follow the mechanical trade of iron and wood worker, and I find persons, it seems to me, who could do better than they do.

S. L. MEDLIN.

Moltke, Tenn., June 11, 1889.

BLUE-JAYS BEE-EATERS, CAUGHT IN THE ACT.

Did you ever hear of blue-jays eating bees? I have killed three this spring, and found their crops full of bees. Now, don't say that they had picked up dead bees, for I saw one go from hive to hive and catch them as they were coming in. The other two were in an apple-tree which was very full of bloom, and on which the bees were working very strong. The jays were picking them from the bloom. My wife and I stood and watched them for some time until we were quite sure that they were catching bees, and then I shot one. The other was so intent on getting his dinner that it did not fly. I then shot it, and on examination found them both loaded with bees.

J. CONGER.

Wyoming, Ill., June 24, 1889.

I believe we have had similar reports in regard to blue-jays before; but they are, perhaps, not as much addicted to eating well-filled honey-bees as are the king-birds. See description of the matter in the A B C.

PROSPECTS IN ARIZONA.

Times here are dull. Honey sells at 5 cts., and wild bees are filling the cavities among rocks, in the giant cacti, or even hanging a cone in thick brush. The harvest is nearly past. Early peaches, with apricot and first fig crop are about gone. Grapes will soon be ripe, of such quantity and quality as have no rival. This is a beautiful "sun-kissed" clime, with sometimes a little too much of the "kiss." Oh, yes! I have a brother of yours for near neighbor. I am wondering if I should like you as well.

B. F. JOHNSON, SR.

Tempe, A. T., June 15, 1889.

Just as soon as my eye caught your letter from Arizona, I began wondering if you were anywhere in the vicinity of my brother. I know what a large area Arizona has, and our readers remember, doubtless, my description of its weird wildness. If that brother will stick to one spot long enough, I should like very much to make you all a visit soon. Do you mean to say that real nice honey sells as low as five cents?

FRADENBURG IN MONTANA, AND WHAT HE THINKS OF THE LOCALITY AS A BEE COUNTRY.

Perhaps many of the readers of GLEANINGS would like to know if I meant what I said last spring when I said that I was going to Montana. Well, here I am in this far-off land. I came here about the middle of May, and about the first person I met here was friend Bingham, the smoker man, from Michigan. Although we had never had a personal acquaintance before, we became friends at once. This is no place for bees. I have seen but one stock since I have been in this State, and it was one a friend brought to Box Elder, a station 50 miles east of here, from Port Washington last March, and they looked badly demoralized, being nearly starved, and dwindled to a mere handful. I presume they have all died ere this. This town has

been settled for 20 years or more, but I can't learn that there has ever been a bee brought here. There are no trees that would produce either pollen or honey of any account. There are some spots of wild weeds and flowers, but they don't look to me to have life and vitality enough to secrete much honey, even if there were bees to call for it; yet I may be somewhat deceived, as this is an exceptionally dry year for this dry country. Their usual rainy season is now nearly passed, and scarcely a drop of rain has fallen. I expect to remain here a week or two longer, and then return to my home in Port Washington, Ohio.

A. A. FRADENBURG.

Fort Benton, Montana, June 18, 1886.

WIDE FRAMES AND HONEY-BOARDS

For some years I have used wide frames for section honey, without honey-boards, and I have been annoyed on account of the bees fastening the bottom of the wide frames to the brood-combs. Often, in pulling the wide frames to get them loosened from the brood-combs, the latter would fall with a tremendous jar, thus greatly disturbing the bees, and often irritating them. I have often wondered how this could be avoided while using wide frames. If a honey-board is used, the tops of the frames are raised too high to let a flat cover go on the hive. I have thought that a honey-board could be used, and cleats tacked on the projections of the wide frames, to raise them a bee-space from the honey-board, thus obviating the crushing of bees while handling the frames; but in this case a half-story cover must be used. Do you know any better way to overcome the difficulty?

T. E. HANBURY.

Atlanta, Ga., July 1, 1889.

If you will turn to page 24 of our price list, you will see illustrated a honey-board, and alongside of it a rim. The purpose of the latter is to raise the upper story of the Simplicity hive up so as to leave a bee-space under wide frames, or frames for the extractor. The honey-board will obviate all the troubles of brace-comb attachments between the brood-frames and the wide frames.

A RATTLESNAKE AMONG THE COMBS OF A BEE-TREE, DEAD, AND HIS MOUTH WIDE OPEN AND FILLED WITH HONEY.

Seeing in GLEANINGS that bees do not like snakes, I will tell an incident that occurred within half a mile of here. Last Saturday two colored men cut a bee-tree; and in taking out the combs of honey they found a large rattlesnake, which had crawled in the tree at the ground, and up the hollow to the combs. Being about 20 feet from the ground, the combs were built around him and even attached to his body for about 2 feet. He died with his mouth open, and the bees made combs in his mouth, and filled it with honey. I did not see this, but I saw the man who took the honey out, and he told me the story. Now, what did that snake go up there for? Did the bees kill him?

Our bees have done very well this spring; very little increase.

D. D. SLATER.

Blackville, S. C., June 6, 1889.

I think the snake had learned to eat heavily laden bees, and possibly to eat the honey out of the combs; and I presume likely the bees stung it to death. If anybody else can explain the matter any better, we should be glad to have him do so.

REPORTS ENCOURAGING.

BOOMING.

OUR bees are just booming. We are extracting right along, and that is very uncommon for this time of year here; but the white clover has yielded us lots of honey, and the linn will soon be on hand. That will give us another week's flow that will give us barrels of honey. As a general thing we get our honey in August and September; and if that keeps up in proportion I don't like to try to guess how much honey we can get. J. PARSHALL.

Skidmore, Mo., June 21, 1889.

Clover is in full bloom, and honey is coming in fast, with prospects of a good yield.

Nashua, Ia., June 19, 1889. G. W. STOCKS.

THE GREATEST HONEY-FLOW FOR YEARS.

We are having the greatest flow of clover honey that I have known in 15 years.

Centerville, Ia., June 24, 1889. G. B. REPLOGLE.

ITALIANS AHEAD OF BLACKS FOR HONEY.

We have succeeded in preventing swarms, and secured an average of 28 lbs. from blacks, and 38 lbs. from Italians, of nice section honey, and have two supers on each hive, with 56 sections, from a good start of comb, all the stages to nearly sealed, and we hope to get an average of 75 lbs. or more of white clover honey, then we expect a good flow from Spanish needle next fall. W. W. ADDISON.

Bumpus, Ill., June 29, 1889.

ANOTHER HONEY-QUEEN.

White clover is abundant. Basswood opened yesterday. I pass two trees four times a day; new honey has been in the market 3 weeks. I have taken 48 lbs. from one colony, more beautiful and delicious than I can describe. No other colony in the same yard approaches this one; only a part of the others are at work in the sections. Our boss honey-gatherer is a match for your "honey queen."

Madison, Ind., June 18, 1889. J. CADWALLADER.

BEEES DOING FINELY.

Bees are doing finely on clover. Basswood will commence to bloom in three or four days. We expect to extract on the 17th. Owing to many rainy days and very cool nights for some time past, the bees have not stored as much honey as we think they would have done, had the weather been more favorable; yet they have done well, and perhaps the abundance of rain may improve the future crop. MILLER BROS.

Bluffton, Mo., June 13, 1889.

THE SEASON IN CALIFORNIA NOT A FAILURE, ETC.

I see reports from various sources, that the honey-crop of California is a failure for this year. Now, such statements are very misleading. The season is only half over, and the yield in some localities in Southern California is quite up to average years, and the quality of the honey is superior to most years, both as to flavor, body, and color. In former years I have extracted honey as late as October 17, and then have the bees fill the upper hive with fair honey for their own use. The abundant rains of this year almost insure a yield of honey late in the season. I have about two tons of nice sage honey now on hand. C. A. WILSON.

Los Angeles, Cal., June 25, 1889.

IN THE BASSWOOD BELT; PROSPECTS FAVORABLE.

I wintered 80 swarms in my cellar last winter, and lost two. I lost some this spring, and sold a few, so I have 66 left in my two yards. Last year, from 32 swarms I made one ton of honey in basswood bloom. This season, white clover is looking well and our bees are doing well. The basswood is very full of buds, and will be in bloom about the 10th of July. That will be our main crop. We should like to have you come out here during basswood bloom. If we have the right kind of weather you will see some good work done in the bee-yards.

Viola, Wis., June 24, 1889.

B. W. LAWTON.

REPORTS DISCOURAGING.

LONG FACES.

Bee business is dull, discouraging, which accounts for being slow in renewing. For three weeks bees have been sitting on the portico of the hives, watching the rain with long faces.

Lyons, Ind., June 12, 1889.

J. SCHOLL.

CALIFORNIA A LITTLE MORE HOPEFUL.

Since I wrote you last, we are having a little more honey; but the crop is, or will be small. Unfavorable weather is the cause. A number will not make expense of running. M. H. MENDLESON.

Ventura, Cal., June 11, 1889.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

CHAPMAN HONEY-PLANT.

The Chapman honey-plant began to bloom June 19. I have just measured some of the plants. The largest measures just 7 ft. 2 in. in height; average, about 4 ft.; heads on the largest plants, from 30 to 40. M. S. PERCIVAL.

Rugby, Tenn., June 25, 1889.

BEE-STINGS A POSITIVE CURE FOR RHEUMATISM.

I have been troubled for years with rheumatism; and when punctured a few times by the bees I found I was entirely cured. The fluid extract of bee-sting is an old eclectic cure for rheumatism.

Kirkwood, O., June 24, 1889.

M. N. McNEIL.

WHITEWASH INSTEAD OF PAINT, FOR HIVES.

I have been using common whitewash on my hives for three seasons. I have had from 40 to 75 colonies. I find it cheap, and it gives the hives a neat clean look. I think it is cooler than paint, and at the same time it helps to preserve the wood. I should like to know if anyone else has tried it. It takes only a few minutes to apply it. I can always have my hives looking fresh and white.

Musson, La., June 21, 1889.

DR. A. W. TUFTS.

DOOLITTLE'S NEW BOOK.

Doolittle's new book is very interesting; but I know by experience that his new plan of raising queens in full colonies over a queen-excluding honey-board does not work every time. In this locality, during the horsemint flow every queen-cell will be destroyed. May be it would work with the cell-

protector. I have not tried it as yet; but I believe the plan will always work in spring, and as long as the colony is inclined to swarm.

Selma, Texas, June 7, 1889. L. STACHELHAUSEN.

VERITABLE ROBBER-BEES.

Mr. A. C. Waldron sends some small shining hairless bees that are robbing his bees. He says they attack only one colony, and are very numerous. These are common honey-bees, hybrids (Italians and blacks). They are small, shining, and black, as they have had nearly all the hair pulled out. They are veritable robbers.

A. J. COOK.

Agricultural College, Mich.

GALLBERRY HONEY.

I this day send you a sample of extracted gallberry honey. This is the first honey for market; and the six years I have been here it has never failed to give a good crop. Please give your opinion of the same. I think it quite nice, and should not be classed as Southern honey.

S. C. CORWIN.

Sara Sota, Fla., June 16, 1889.

[The sample came duly to hand. The color and body of the honey are good. While we do not think that the flavor is quite equal to that of white clover, yet it ought not to be classed with the ordinary Southern honey, so called.]

IS HONEY FROM CATNIP BITTER?

I had a large quantity of catnip in my yard. I was talking with a friend a few days ago, and he said that catnip would produce honey that was bitter. I should like to have your views on it. If I thought it would be an injury to the honey, I would cut it all down.

THOS. PHILLIP.

Holland Store, June 7, 1889.

[You are certainly in error in thinking that the honey from catnip was bitter, or even poor. Some years ago one of our bee-friends planted catnip largely for honey alone, and he found the quality was very fine. It has a somewhat aromatic flavor, like that from the mints and basswood; but this flavor is not bitter, and in no way objectionable.]

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 135.—a. *When, in your locality, does white clover first begin to yield nectar?* b. *How long does it usually last?* c. *What other sources have you for white honey?*

a. May 25 to June 10; b. 4 weeks; c. None.

DADANT & SON.

a. About June 10; b. It lasts till about July 10; c. Basswood.

GEO. GRIMM.

a. About June 10; b. Lasts from two to four weeks; c. Linden.

A. J. COOK.

a. As a rule, with the beginning of June; b. As a rule, to the beginning of July. c. None.

C. F. MUTH.

a. Usually about June 15; b. From two to three weeks; c. Raspberries, sumac, and basswood.

A. E. MANUM.

a. About June 10. b. Until July, or until basswood gives nectar. c. Raspberry, willow, sumac, linden.

RAMBLER.

a. About June first; b. From two to three weeks; c. Basswood and sweet clover.

A. B. MASON.

a. Generally from June 1 to 6; b. From two to four weeks; c. Basswood, red-root, and sometimes mint.

S. I. FREEBORN.

It used to begin about June 6; but for several years past the yield of honey from that source has been so light that it has been a little difficult to tell just when it began and when it left off. c. Basswood.

H. R. BOARDMAN.

Usually bees commence on white clover from June 1 to 10. There is some clover in blossom here now May 28. But the bees are not making a living. Weather is too wet and cold. For white honey in this locality we have white clover and basswood.

E. FRANCE.

a. Usually not far from June 20. b. From two to three weeks. c. Basswood. White clover is not usually a heavy yielder with us, bees working on a variety of flowers. The common daisy often furnishes honey enough for brood-rearing, for a short time.

P. H. ELWOOD.

a. I have seen white clover in bloom in January, but never had any yield from it before March. b. About July 1. Some favorable seasons it will last till August. c. In the fall we have the smartweed and eupatorium, which yield lighter honey than white clover.

PAUL L. VIALON.

a. It varies at different seasons, all the way from the first to the last of June. b. The heavy flow from white clover usually lasts from 10 to 20 days; but a very moderate flow will sometimes last six weeks. c. A very small amount of basswood. This refers to my Iowa location, as my answers all do, when different locations would make a difference in the reply.

O. O. POPPLETON.

a. From the last of May to June 10. The bees don't seem to accomplish anything on it until about ten days after the first blossoms are seen. This year was exceptional. The first blossom was seen May 15, and three days later I saw a bee on a clover-blossom. b. Three to six weeks. c. Practically none, although cucumbers help some for winter stores.

C. C. MILLER.

a. Usually from May 25 to June 1. In a wet season, somewhat later. b. The first crop of white clover, ordinarily about a month; if the rainfall is plentiful, younger plants come forward and even new ones from the seed, so that the flow is extended almost through the entire season, although the yield may not be large; c. Apple-blossoms, raspberry, polygonum, blackheart. Apple-bloom is not very white. Linden in some seasons yields well; in others, not at all.

MRS. L. HARRISON.

a. We have no white clover at all, except with blue grass, in front dooryards. b, c. Wild alfalfa, white, purple, and black sages; black sage abounding in only a few localities, commences yielding, I will say, in the last half of April. Purple sage, perhaps the most abundant of any, especially near the coast, comes in the fore part of May; and white sage abounds in the more elevated districts away from the coast, in the last half of May. Wild alfalfa comes about the same time, or a little earlier, than white sage, and is about as good for honey. The time of bloom varies from one to six weeks. Each variety yields honey from four to six weeks.

R. WILKIN.

a. From June 10 to 20; b. About one month; c. Willow, apple, and teasel; but basswood gives far more honey than all the rest combined. Some years a little alsike clover is sown, which yields far more honey than the white, with us; but the honey is of so dark or reddish a color that I do not like it, on account of its being sure to spoil the looks of the first sections off in the basswood yield.

G. M. DOOLITTLE.

a. About June 1, varying about ten days one way or the other, according to the season. b. It always lasts clear into the basswood, which begins blooming July 1, as a rule, and many times I have known the bees to gather considerable white-clover honey after the basswood was over, after July 20. c. The basswood is our only other source after white clover, to any considerable extent. The pleurisy-root yields white honey and is a profuse yielder too; but as yet there are not enough of the plants in my locality for my large apiary to make much surplus from; however, it has been rapidly increasing for several years past.

JAMES HEDDON.

a. It comes into bloom about May 20, and begins to yield honey about twenty days afterward. I have kept close watch of this for several years, and here is the record—that for 1886 being lost.

	1884.	1885.	1887.	1888.	1889.
First bloom -	5-23	5-20	5-20	5-23	5-12
Began to yield honey	6-14	5-28	6-4	6-6	6-11

As will be seen, this year it bloomed earlier and began to yield honey later than usual. b. The yield runs into that from basswood, which begins about July 1, and does not amount to very much after that closes, about ten days later. c. Besides basswood, the crop from which grows less and less each year as the trees are cut down, we frequently get considerable honey from sweet clover, for which there is an excellent prospect this year.

J. A. GREEN.

White clover seldom yields much surplus before June 10 in this locality, although it blooms much earlier; and at the close it tapers off and mingles with other things in such a way that it is hardly possible to state its duration. Some years it seems to yield scarcely at all; but the fact that I do not see bees working on it is not full proof that they are not doing so on some other portion of their range. In regard to its blooming, I find the following on my records:

Year.	Began.	Closed.	Days.
1880	May 20	Aug. 15	88
1881	" 22	Sept. 11	113
1882	" 27	Sept. 13	118
1883	" 29	Oct. 7	125
1884	" 19	Sept. 6	110

As to other sources of white honey, I have some basswood. I used to credit wild basil and white cornel with furnishing considerable white honey; but with the lapse of time I have come to doubt it.

E. E. HASTY.

The above question was intended to indicate to some extent whether it is practicable to move bees from north to south, so as to keep in the clover bloom. Friend Manum, I believe, is the furthest north of any of our reporters, and he gives the date as June 15; while Freeborn, of Wisconsin, might be nearly as far north, he gives his report as from the 1st to the 6th. Friend Elwood, in York State, puts it not far from June 20. Friend Wilkin, of California, says they don't have any clover, which I was

well aware of. Friend Viallon says they seldom get any yield of honey from clover before March. Sometimes it lasts till August. My impression is, that we are indebted to white clover more or less in all our localities, say up to August or even later. Even here in Ohio I have seen quite a yield of what I pronounced white-clover honey, during August and September; and as the bees were working on white clover almost as much as on the red, it is difficult to decide, if, in fact, we can decide at all, which kind of clover gives the more. The above answers also indicate that basswood is not, as a general thing, as widely distributed as white clover.

QUESTION 136.—a. Do you ever get enough honey from red clover to secure a surplus to any extent? b. What is the most you ever secured from this source?

No. DADANT & SON.

No. H. R. BOARDMAN.

a. No. A. B. MASON.

a. No. b. (?). A. J. COOK.

a. No. b. None. E. FRANCE.

a. No. b. Winter stores. GEO. GRIMM.

a. No. b. I am not able to tell. P. H. ELWOOD.

No; but little red clover is raised near me.

O. O. POPPLETON.

a. No; b. It has been so mixed up with honey from other sources that it is impossible to tell.

MRS. L. HARRISON.

Several times red clover has been planted here; but I never had the bees gather any nectar from it.

P. L. VIALLO.

a. Only once in a great while we secure more honey from red than from white clover. b. I don't know.

C. F. MUTH.

a. I once credited red clover with a few barrels of honey, but afterward thought that the blue vervain should have had the credit.

S. I. FREEBORN.

a. No red clover here. I never got any that I knew of when I lived in the East, and even had my doubts of any one else getting any worth counting.

R. WILKIN.

a. No. b. I never learned. The yields reported from red clover, I think, are in localities where a second crop is raised for seed; the blossoms are smaller.

RAMBLER.

a. No. b. I don't know that I ever got any; but one year, during a yield of buckwheat, two colonies gathered light honey that may have been red clover.

C. C. MILLER.

Though I have known my bees to work on red clover, I never knew them to make much surplus from it, and I leave it altogether out of my calculation in estimating the honey-crop.

J. A. GREEN.

a. Only one year did I ever get any considerable quantity of red-clover surplus honey. I think nearly two thousand pounds of extracted honey was the amount that year. b. Answered above.

JAMES HEDDON.

Not of late years, as there is a little worm which works on it and this prevents its blossoming at all. In 1872 I obtained about 30 pounds of honey from this source from some of my best colonies, and did

nearly as well one or two other years prior to 1880. This was all gathered by Italian bees, while at the same time the blacks were consuming the stores which they had gathered from basswood.

G. M. DOOLITTLE.

Bees frequently work on it; and they surely would not work it for pollen alone in my location, where pollen resources are so great. I doubt, however, whether I ever realized any great amount of surplus from it.

E. E. HASTY.

No, not separate from white clover, as my bees work on both at the same time; that is, both bloom together here, and bees are seen working on both. My bees work well on the red clover some years when it is plentiful. I find that the dark or leather-colored Italians work on it much better than the bright yellow bees. Mr. Frank Boomhower, of Gallupville, N. Y., who advertises "red-clover queens," first got his stock from my apiary, when he said they were the first bees he ever saw work on red clover. b. I never get it separate from white.

A. E. MANUM.

The string of "noes" at the beginning would seem to indicate, either that red clover does not flourish everywhere, or that it does not yield honey very often. I feel like adding that the friends who say "no" have not observed as closely as some of us; may be, however, that last had better not be added. Muth says, "Once in a great while;" so we know he is pretty certain that he has had a good yield from red clover. Friend Freeborn once gave red clover the credit, but now thinks it doubtful. James Heddon has had only one good yield from red clover. Now, I am inclined to think, as in the question just before, that we are all indebted more to red clover than we know. In our locality you may go out into the fields in July, August, or September, and find Italians working steadily and busily on red clover, day after day, and week after week. And, while it gives a surplus only under very favorable circumstances, I feel certain that red clover keeps bees busy and out of mischief, and keeps brood-rearing going, and oftentimes enables them slowly to accumulate sufficient stores for winter, where it does nothing more. Ernest remarks that only last summer, the red-clover bloom gave enough honey so as to save quite a good deal in sugar feeding. The color and taste of the honey indicated pretty surely the source. In our locality, more or less red clover is always round about us, to the extent of perhaps 100 acres within range of the bees' flight, from which a good deal of clover seed is raised. What we call red-clover honey has a ranker taste than that from white clover. The color is a little greener. That a bee fills its sac from the blossoms of red clover, can be easily proven by dissection. You can also find the same honey by dissecting the clover-head. Sometimes the honey is scarcely perceptible, either to the taste or to the sight; at other times it seems to almost fill the tube of the blossom. At such a time, the bees work strong, and fill the boxes. A good yield of honey, however, from red clover, in our locality, is the exception rather than the rule.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

A WHOLE PLATEFUL OF HONEY AT A TIME.

My uncle Joseph has 14 hives of bees. He has taken 50 lbs. of extracted honey, and 50 lbs. of comb. But the rainy weather has been a drawback on the bees. He expects to take a nice lot more; that is, if it doesn't rain too much. I never used to like honey till this year, because when my uncle first kept bees I ate a whole plateful and it made me sick. I have a little playmate who likes to eat salt on honey.

MABEL BRIGGS, age 11.

Cornwall Landing, N. Y., June 17, 1889.

PAPA'S GREENHOUSE.

Papa has a forcing-house. It is 12 by 34 feet. It is covered with glass, and heated by a furnace, on the return-flue system. It is a perfect success. He has a lean-to on it and half of it is covered with glass. In that he keeps his furnace, water-tank, and also has room to transplant in it. He has the beds in the other part. He has about 2000 once transplanted Grand Rapids lettuce-plants. He also has cabbage, cauliflower, and tomato seeds sown, and has radishes up. He gives us children one cent per 100 for transplanting.

LOVINA E. WHITNEY, age 10.

Independence, Iowa, Feb. 15, 1889.

BEEES IN GERMANY.

Bees in Germany are doing very badly. My mother is there this year, and also my brothers, taking care of them. My mother is going to send me a photograph of our buckwheat apiary, of about 40 straw hives. You have no such hives in your A B C book as we have in Germany. My mother had the first swarm Pfingsten (Easter). She took some hives along, and other goods, to show the people in Germany. About half of our bees died last winter, for we had no one to see to them until mamma came out in spring. She is going to visit some large bee-men; and when she comes back I will send you a report of her journey. Papa is busy hiving swarms. He says the bees have no honey, and are doing little. Last year he and I extracted honey

ANNA BLANKEN, age 11.

Jersey City, N. J., June 26, 1889.

All right, friend Anna; let's hear from you again.

PAPA'S BEES.

My papa has 56 colonies of bees. He has had three swarms of bees this summer. We had a cold dry spell, and they did not gather much honey. Papa had to feed some of them. One colony of papa's bees was attacked by what is supposed to be the nameless bee-disease; but he took out the old comb and put in others, and saved part of them. He made a swarming-box; and sometimes when you would think the bees had all gone into the hive, they would all be in the swarming-box. Papa gives me a penny every time I see the bees swarm first. Papa lost one colony of bees this spring, but he did not lose any last winter. He extracts the most of his honey, because people like it better that way, and it sells more readily. Papa has divided six colonies.

LILLIE SPRACKLEN, age 14.

Cowden, Ill., June 3, 1889.

HOW FAR DO SWARMS FLY?

My brother has 40 hives. We have had a very long drouth. We had a good rain last night and this morning. The horsemint is in bloom. It was dying, but this rain will stop it. My brother has not had many swarms; but two ran away. Do you know how far a swarm flies? Mr. Stone, of Belton, was the first man that brought the Italians to this county. While increasing them a swarm ran away. A long time after, the swarm was found 14 miles from the apiary. No one knew the race of bees. Mr. Stone bought the swarm for \$5.00. My brother buys his supplies of you. He gets other bee-keepers to order with him, so as to make freight cheap.

I thought I would tell you about wild ducks. They build their nests in a hollow tree, and keep their eggs warm with down. They lay from 10 to 24 eggs. Their eggs are white, about the size of a pullet's egg. They prefer a tree that leans over the water to build a nest in. When the eggs are hatched, and the young ducks are about an hour old, the old duck takes them to the water. Then the drake helps to defend them. If any one comes near, the old hen will act as if she were crippled to get the one to take after her, then the drake will take the ducks to the bank and hide them. The young ducks are very wild. Before the young ducks are able to fly they dive under the water.

WM. MORGAN.

Belton, Texas, June 12, 1889.

A LETTER FROM A LITTLE BOY IN SCOTLAND.

My father has given me leave to write a letter. Did you ever get a letter from a boy in Scotland? Our farm is in a glen in the highlands of Inverness-shire. We are near the big hills; they are covered with heather. It grows as thick as grass, and is awfully bonnie. We like the heather. It is red and purple, and some white. Father says you have no heather in America. I thought it was in every place. I am sure father would send you some to plant. It has a bonnie wee flower. I will tell you about father's bees, if you like.

JOHN STOKES, age 8.

Balnastraid, Carrbridge, Scotland.

We are very glad to get your letter, friend Johnnie. Although we have had juvenile letters from almost all parts of the world, we do not recollect just now of having received one from Scotland. We should very much like to see the Scotch heather, which you say, in your very expressive Scotch, is "awfully bonnie." No, we have no heather

in America, but we have heard a great deal of the heather honey, and we have tasted some samples. We have white clover, however, which we are proud of. Let us hear from you again. We like to hear from the little boys and girls, especially those who live on the other side of the "big pond."

700 LBS. OF HONEY FROM A SINGLE COLONY, ETC.

My father said that to every boy who writes a letter to you, you send a book. My father keeps bees, and I keep bees myself. I handle them. I have two sisters. One runs away from the bees, and the other don't. My father took over 700 lbs. of honey from one hive one season. I boxed a swarm of bees when I was three years old, and I have five swarms. I sold a swarm for £1.75, and bought a tricycle.

FRED W., age 8.

Adelaide, South Australia.

Seven hundred pounds of honey and over has been produced from a single colony and its increase. Such enormous yields are very rare indeed; still, it is not impossible that your papa took that much. We should be glad to hear more about it. As you have a long season, those 700-pound yields probably are not as scarce as they are in America. We should be glad to hear from some of our subscribers, especially the little folks who live in this portion of the globe. In regard to "boxing," a swarm of bees (or hiving, I suppose you mean) when you were only *three years old*, that is a little hard to believe. Little boys have a memory that is not always reliable; and one peculiarity of their memory is, that a thing is always greater than the real fact.

BEE KEEPING IN MINNESOTA; SWARMING, ETC.

We live up away up here in Minnesota, where such bee-raising as we read about in your books is unknown. My father is an amateur bee-raiser. He has been a market-gardener for many years, and finally two years ago he thought he would keep bees in connection with his gardening. Two years ago he got two colonies, paying the sum of \$12.00 for them, and now we have ten colonies. As you wanted me to write the facts, here goes:

A year ago we wintered the bees in the outdoor cellar, and they wintered nicely. Last winter he dug a hole, with ventilation in the top, and buried them. But there were two weak colonies, and those they left in the cellar. My mother fed them honey, and they ate it all up. Then she bought patent syrup and fed them, and it killed every one. So do not any of your readers ever feed your bees on patent syrup.

Will any of your readers tell me why our colonies swarmed so early in the season when Mr. Levy has 60 colonies, and he hasn't had a new one this year? and another bee-man who has 50, and it is the same with him? But my father feels proud that he has had the first and only new colony in the neighborhood this year.

MISS EDNA SHAW.

Fountain, Minn., June 8, 1889.

We don't know what your patent syrup is; but we always recommend, for a winter food, granulated-sugar syrup. In regard to the swarming, perhaps your papa keeps stronger colonies, or perhaps your neighbors keep the swarming cells of their colonies cut out so as to discourage swarming.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

THE PIPESTEM STICKIN' OUT.

My friend, your pipe we can not see;
Hidden surely it must be;
For while you travel round about,
We see the stem a stickin' out.

Now, do you think it nice and wise
To burn your nose and smoke our eyes?
Then just you lug your pipe about,
And leave the stem a stickin' out.

And if you think you're doing right
To puff and smoke both day and night,
Just bear your pipe with you about,
And leave the stem a stickin' out.

Examples set to girls and boys,
Although they spoil their life-long joys,
And as you pass along the route,
Just leave your pipestem stickin' out.

Thus as you lead the youth along,
To practice what they know is wrong,
They see the sign you bear about;
It is your pipestem stickin' out.

At home, at church, or while abroad,
The people all with one accord,
With deaf'ning roar aloud may shout—
"We see your pipestem stickin' out."

Now, if you would disgust us all—
The old, the young, the large, the small,
Just lug your pipe around, and shout,
"Here! See my pipestem stickin' out."

Cedartown, Ga. J. M. H.

A neighbor of mine, through the influence of GLEANINGS, has decided to quit the use of tobacco. If you will send him a smoker I will be responsible. If he ever uses it again I will pay for it.

Anneville, Texas. G. H. REED.

One of my friends, Mr. Sievert Anderson, who has been a great smoker, has quit smoking, and says if you will send him a smoker to Newton, Benton Co., Oregon, he will quit; and if he ever smokes again he will pay you.

Newport, Oregon.

MRS. C. DIXON.

I promise to pay for the smoker should I ever use tobacco in any way again; if you will try me this once yet, I feel as if it would be the last time I should have to ask for human help.

Here is another who is no reader of GLEANINGS, but he says if you will send him a smoker he will pay 75 cts. for it if he ever uses tobacco again in any way. If he breaks his pledge I will see that he pays it. His name is Albert Sanders.

Fairfield, Pa.

J. A. KIME.

I inclose 70 cents to pay for a smoker for myself, and also 20 cents to pay postage on a smoker for George James. Having used tobacco for 20 years he says he will quit; and I promise, if he ever uses it again, to pay for the smoker if he deserves one.

Denver, Mo.

W. R. SMITH.

An old friend of mine, Mr. Crandall, who has used tobacco for many years, has quit using it. I have also quit, as I never used it very much. Now, if you think we are entitled to a smoker between us, please send it along; and if we ever use it again we will pay you the full amount.

L. W. WATTS.

Portland, Oregon.

HAS RESUMED THE USE OF TOBACCO, BUT PAYS FOR THE SMOKER.

GLEANINGS is always gladly received. Mr. Rolan Routen has fallen back to his tobacco, and sends you 70 cts. to pay for the smoker he got.

Henry, Tenn.

R. F. CARTER.

Thanks for the 70 cents, friend C.—not because it is so much money, but because it shows that your friend is honest and square. We hope he will try it again, however.

I wish to join your anti-tobacco company, and I want a smoker, and then I shall be a smoker no longer. I have been using tobacco, though not immoderately, for several years, and I know it is an injury. I agree to all the conditions, so put me upon the list.

J. M. AKER.

Smithville, Mo., Apr. 25.

Friend A., where do you draw the line between "moderate" and "immoderate"? If, as you say, you used it moderately, and yet suffered from it, is it not true that the use of tobacco to any extent is an abuse of it, as it is with liquor?

Under date of May 9, friend A. says:

The smoker came this evening. Thank you. My time to stop smoking and chewing has begun, and I think I can be faithful. I never chewed or smoked extravagantly, but I have been at it thirty years or more, though I have quit several times, sometimes a year or two, in that time.

J. M. AKER.

Smithville, Mo.

I think that any man, by reading GLEANINGS, will be a better man spiritually if not financially. I have been smoking tobacco 25 years, and Bro. Morrow (the bee-man) told me I was smoking too much; and if I would quit you would give me a smoker; and in case you send me one, if ever I use tobacco again I hereby promise to pay for the smoker. I did not do this for the mere value of the smoker, for I don't suppose that money would have hired me to do so; but I believe that morally it is wrong; and, God being my helper, I'll never do it again.

Washington, Ark.

H. B. TIMBERLAKE.

COMMENCES THE USE OF TOBACCO, BUT PAYS FOR THE SMOKER.

Mr. Ummel has been using tobacco again, and I send you one dollar to pay for a broken pledge. He does not use much, but I should like for him to leave it alone altogether. I have three boys and three girls, all under ten years of age. I should hate awfully if any of them should learn to use the vile stuff. I hate tobacco, and I will fight it as long as I live. Pray for us, dear friend; pray that my dear husband may see how wrong it is to use tobacco, and that he may have strength to leave it alone.

New Goshen, Ind.

MRS. JOSEPHINE UMMEL.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

MARKET-GARDENING IN JULY.

ONE of the venders of a recipe for making artificial honey once said, as a reason why people had better manufacture honey instead of having the bees gather it, that it required brains enough to run a cotton-factory, to produce honey successfully with an apiary of *beehives*. Well, may be he was not so far from right, so far as brains are concerned; although I believe it would take still more brains to humbug and defraud the public, and at the same time build up a profitable business. Well, I have been thinking, during this July, that it takes as much brains to run a market-garden successfully as to run an apiary; and it is right in the line of this matter of demand and supply that I spoke about last month. As an illustration: Last year we raised so many peas, and managed so awkwardly, that they ripened all at once, as it were, until nobody wanted to see another pea. Prices went away down, and beautiful stratagems would hardly bring enough to pay for picking and carrying around town. This year I thought I would profit by experience, and I did. Just as soon as one lot of peas was up, another lot was planted, or drilled in, rather, with a grain-drill. It is a great deal more trouble to get the drill out so many times, and drill only two rows or three, the length of the lot; but it does the business. This year we have not had a pea on the wagon that was old and hard. The reason is, that customers have been for six weeks calling for the peas a little faster than they ripened; and we have had \$2.00 a bushel for every peck we have sold, with the exception of a small portion of the first Alaskas. Now, my mistake was in not planting one row more when I did plant, so as to give our Medina people just enough. We could then have had good prices, and supplied all demand. It has been the same way with lettuce. During the last of June, we had great beautiful heads of Henderson's New York lettuce, about as solid and almost as large as cabbages. At 5 cents a pound it was very good business indeed. But we had too many of them *at once*. It did not run up to seed; but as we had so much wet weather the heads rotted at the center. When these great crisp heads of lettuce were just right, nobody would look at any other—not even the Grand Rapids. Several patches of lettuce that were grown with much care and pains, were never made any use of whatever. When the big-head lettuce, however, began rotting at the center, all other kinds began to shoot up seed; and in one week after having the market overstocked, we had no nice lettuce at all, and the price has gone up from 5 cents to 10 cents per pound. Now, to manage so as to have just enough of each and every product in the market-garden to supply the demand clear through the season the year round, is certainly a matter requiring much calculation and forethought. In fact, I should like to see the

man who could do it, even for a town of 2000 inhabitants, and make no mistake. It is just so with the plant-trade. This year we had a great quantity of tomatoes, and thousands are yet in the seed-bed, or, rather, where they were transplanted; but the late cabbages we did not get enough of, and lost quite a good many orders. The Jersey Wakefield was a little overdone. By the way, the finest and hardest heads of cabbage we had last year to winter over were the Jersey Wakefield and Winningstadt. They kept over winter, in fact, a great deal better than Flat Dutch, and cabbages of that sort. Last year we managed cabbages so as to have not only enough, but too many, and many of them burst and went to waste. We made sour-kraut of them, but the sour-kraut did not all sell. This season, as with the peas, we went to the other extreme. We have not had enough cabbages for the demand so far. The consequence is, we are still getting 5 cents a pound for choice hard heads of Jersey Wakefield, even now during the middle of July. We are so well pleased with friend March's strain of Jersey Wakefield that we planted some seeds the first of July. The plants are up nicely, and will be put in the field during the last of July. We expect these will make nice heads to winter over; and if the price in the spring is not well up, we shall try planting some of our own so as to raise our own seed.

We have had more trouble this summer than ever before, with early celery running up to seed. We thought at first the fault was in the seed, and were going to complain to Peter Henderson because his White Plume ran to seed more than it ever did before. But when the Boston Market, Self Blanching, Golden Dwarf, and, in fact, the whole of them, ran up to seed, instead of making celery, as they have former seasons, we decided that it was the fault of the season. If any reader of GLEANINGS has a strain of celery (it ought to be White Plume or Self Blanching) that is especially adapted for getting early celery so as to put it on the market in June, he would confer a favor on us by sending us samples. We usually have celery on the market during the last of June; but our customers have not had a bit so far at this date, July 9.

THE BEST EARLY STRAWBERRY.

I told you a month ago, that the one fact that the Jessie furnishes strawberries in every respect equal to the Sharpless, but a weak or ten days *earlier*, was of itself a sufficient reason for giving that variety prominence. Well, after our strawberries were all picked I happened to go out to that nice patch of Jessies that I told you about; and what do you think? Why, it was pretty well covered with berries, when there was not any other strawberry on the place, with one exception. These later Jessies are not so awkward in shape as those first ripening were. They are nice and round, red all over—excellent in flavor, and sold readily for two cents a quart more than the black raspberries. Now, this may be caused partly by the way in which this bed has been cared for. The runners were kept off, and

the furrows between the beds have carried off the surplus water from our tremendous heavy rains. Have others found the Jessie superior as a *late* berry, as well as an early one? I spoke of one exception; this is the Gandy. The first ripe berry I found was in July. They are of good shape, and it is in every respect a good berry; but the few plants we have did not bear much fruit; and may be very late strawberries never do yield as much as the early ones. It is also very slow in putting out runners—so much so that the price of plants ought to be pretty high if they will behave as our Gandies do.

EARLY ONIONS, TO BE SOLD IN BUNCHES.

For a number of years we have sold great quantities of bunch onions; but I have been in the habit of using good-sized sets for the purpose. Years ago I bought quite a lot of good-sized Yellow Danvers sets; in fact, they were onions too small to sell, taken from those raised in the field. The swamp garden was almost filled with these. Well, like the celery, "every last onion" put up a seed-stalk. We cut off the seed-stalk, but that did not work very well. The onions are tough, and it is a good deal of work to peel them, so as to make them nice and handsome. Now, one of the boys planted a single row of White Victoria, furnished by Burpee. These were planted ever so much too thick, and we were too busy to thin them out. One day our hotel wanted some small onions, without bulbs, to put in glasses. I suggested to the boys that they thin out the White Victorias. These filled the bill exactly, and went off readily at 5 cents a bunch. The bunches hardly weighed half a pound; while of large coarse onions we gave a whole pound for a nickel. Well, these White Victorias do not have to be peeled at all. Just pull them out of the bed by the handful, and they are as white as snow, after we rinse the dirt off. Just tie a string around a good handful, clip the tops off so as to make them look even, slice the long slim roots off with a knife, and they are ready for the table. They are put on the table in long glasses, the bottom part uppermost. One could raise these onions by the million, at very little expense; but, like the peas and other things, we want to sow a few at a time, and keep up the succession. By the way, the Silver King, White Victoria, and the White Pearl onions, are all of them greatly superior for market-gardening; but they must be pulled and sold as soon as they are fit. If you try to stow them away, or keep them, as you do Yellow Danvers, Extra Early Red, or even Silverskin, you will come to grief. They will *rot* in spite of you, if you do not use them when they are ready to be used.

Now, it is a complicated matter, and requires much judgment and care, to have things come along in succession so as to be just the proper age at the time wanted, at the same time having enough and not very much too many. But it is a pleasant exercise for the mind and also for the body, and I do believe that quite a large and profitable business can be built up in almost any town where one will go at it in the way I have indicated. You may say your folks won't

buy onions and lettuce in July and August; but I haven't a doubt but that I could show you your mistake in short meter. The goods must be presented to customers in attractive shape. During this hot weather we have wet cloths constantly over every basket. If you let the sun shine right down on your lettuce, onions, or even into the potatoes, just a little while, it makes them look unattractive, and they are not as nice for the table. We are located within half a mile of the center of our town; therefore the wagon seldom goes over a mile in any direction; and during berry time we have found it much better to make frequent trips back to the garden. We are now getting raspberries at the rate of six or eight bushels a day. We get 8 cents for black ones, and 13 for the red ones. By choosing the right varieties these can be made to ripen in succession so as to avoid having a great lot on hand all at once. We have decided to can them before we will sell them at a less price than six cents a quart. We have been obliged to can only 2 bushels yet, which was Saturday night. It is an excellent idea to be able to tell customers that you propose canning before you will go below a certain price. Thompson's Extra Early Red raspberry ripened a little after the middle of the strawberry yield. The Turner came next, and now Cuthbert is beginning to ripen. Shafer's Colossal ripens last, and holds on a long while. The Doolittles are our first black raspberry. The Gregg comes in just after the Doolittle begins to fail. Then come blackberries. The Early Harvest begins to ripen before raspberries are gone. The Snyder is the one we use for the great-est crop.

This year we keep accounts with our berry-pickers by means of a blackboard. It is hung on one of the shutters used for our cold-frames. When a child brings in a basket of berries, the foreman gives him credit on the blackboard, which is right before his eyes. If the foreman does not do it right, the child makes his complaint then and there, and it is clearly understood that, if the picker assents to the figures on the board, there is to be no more talk about mistakes or omissions. Every picker brings in his berries, and sees his credit put down. He also sees how many quarts his comrades are getting, compared with his own. If he is visiting or playing, instead of "tending to his knitting," the blackboard record points the finger of reproof at him. Sometimes the foreman pleasantly explains to the younger ones, "My young friend, the reason why you do not make as good a record as the others is because you have been telling too many stories." The foreman examines the work of every picker; sees that he does not get green ones, leaves, etc., and also insists on having the bushes picked clean. The temptation to pick green ones in order to get along fast is considerable; but once in a while a child has to be sent home for the rest of the day, because he persists in getting green berries. The blackboard is one of the kind that rolls up so it can be unhooked from its nail, and carried in at night, or when rain comes up.

July 10:—Did you ever! When we decided to can our raspberries if they would not bring 6 cts. a quart, we had more orders than we could fill at 7; then we came up to 8, and we had more orders than we could fill, even at 8. To-day we are charging 10 cts., and the berries do not ripen fast enough to supply the demand, even at this price. It seems to me here is a lesson, not only for berry-producers, but for honey-producers as well. Do not be in a hurry to sell your product, and do not make contracts very much ahead.

THE BUSH LIMA BEANS AT THIS DATE.

I told you, in our last issue, that the Minnesota lima beans were all climbing poles. Well, one or two of the Kumerles are now sending up strong shoots, away up into the air, twisting themselves about in a spiral fashion, as if they could do a good job of climbing if they had a chance. Well, they are going to have a chance. Last of all, quite a few of the Henderson bush limas are also sending out shoots to climb poles. Now, friends, let us not be in haste to say hard things about the seedsmen. A quarter of an acre of our white kidney beans that have for years behaved themselves exactly like a bush bean are sprawling all over the ground, almost exactly like a patch of pole beans. Is it possible that the exceedingly damp weather has started such a rampant growth that the beans are all turning out climbers, and the celery and onions are all sending up seed-stalks? It certainly looks a good deal that way.

OUR HOMES.

God hath put all things under Christ's feet, and gave him to be the head of all things over the church, which is his body, the fullness of him that filleth all in all.—Eph. 1: 22, 23.

WHY SHOULD I UNITE WITH THE CHURCH?

BEFORE taking up the subject indicated in our text, I wish to give you a glimpse of a letter just at hand. It is so perfect a supplement to the sermon, that it almost seems as if the two writers had been talking the matter over.

Mr. Root:—GLEANINGS for July is received, and I have just finished reading your article on "Love your Neighbors." I want to tell you how I tried to keep Mr. A. from subscribing to Bee Culture. While I was away, some one sent him a swarm of bees in a very old hive. He made two nice bives; and before he could get the bees in one he was taken sick. Knowing how much he thought of them, I took as good care of them as I could. When he was fully restored in mind, he began to be interested in his bees again. Now, you know we had lost every thing, and a dollar was as big to us as a "cart-wheel," especially as we had been to so much expense during his five months of sickness, and he still unable to attend to business.

I forgot to tell you in the start, that my husband was an ungodly man, and an unbeliever. As I said, he "got" interested in his bees, and nothing would do but he must send for frames, a smoker, etc. You, I believe, sent him a sample copy of GLEANINGS, so he must subscribe for that. I told him we

could not afford it, as the bees had cost him enough already. But he did, and the very first number was of untold value to us, especially for the article in "Myself and my Neighbors." It came right in the midst of a great revival. I had been unable to get Mr. A. out to preaching; but before the meetings were over he made a complete surrender to Christ, and is now an earnest worker in the cause. I do not think GLEANINGS comes half often enough for me. During the meetings there were a good many who could not see their way clear. GLEANINGS was handed around like a tract, or religious work, and was quite a help. I think the article in that especial number was, "Am I a Christian?" Would that all business could have Christ in it! I just felt drawn to you in Christian love on reading the article in the July number, and thought I must write and tell you how much I enjoy your paper, thinking it might be a help to you in writing for the August number. Now, Mr. A. has to go off for the summer. He will be in New York in July, August, and September, and I shall have the care and anxiety of the business as well as of the family, and I want your prayers that the Lord will be with me, and that I may be able to trust him fully to care for me. We had friends to help us in our trouble, and now I think we shall get on nicely. Please excuse this effusion, and *don't* let it fall into the hands of Blue Eyes, or the printers. Mrs. J. P. A.

You will notice in the above, that my good friend says, "Do not let this get into the hands of the printers;" but knowing how such encouraging words as hers incite us all to renewed efforts, I have taken the liberty of disobeying, giving the initials only. You will notice a reference in her letter to an article in GLEANINGS for May 15, entitled, "Am I a Christian?" This sermon was followed shortly after by another one, in substance covering the head of this talk to-day—"Why should I Unite with the Church?" I have been for some time thinking of giving this talk also; and the above letter, telling how it was passed around from one to another to read, has decided me to do so. I am the more glad to give it, because the matter has come up at different times among the readers of GLEANINGS, and I know there are quite a number who have had quite a bright experience to start with; and yet, by putting off uniting with the church, they finally begin to delude themselves with the idea that they can be just as good Christians without taking any public stand with the people of God.

And the Lord added to them day by day those that were being saved.—ACTS 2: 47 (R. V.).

The translation of the Revised Version is preferable here, because of its more accurate rendering of the closing words of the verse. The Authorized Version translates: "*Such as should be saved.*" But the term in the Greek is a *present participle* (*sodzomenous*), signifying, not future, but present attainment—"Those who were being saved," or, "Those who were getting themselves saved." There is another difference in the two Versions. The Authorized Version, upon the basis of the "Textus Receptus," translates, "And the Lord added to the church." But there is a difference of opinion whether the words *ta ekklesia*, "to the church," should be retained or not. They are sustained by good authority, and there is good authority for their rejection. But,

whether retained or not, the meaning is the same. This meaning can be most clearly set forth by a combination of the two translations, reading thus: "*And the Lord added to the church day by day those that were being saved.*" That is, as fast as men were converted, day by day, they were received publicly into the company of the disciples, who constituted the church of God.

We need to understand clearly, as the connection so plainly shows, that the *visible* church is here meant, and not the *invisible*. In the 41st verse we read: "And they that gladly received the word were baptized; and the same day there were added unto them about three thousand souls," clearly referring to the converts of the pentecostal revival, who were already members of the *invisible* church, and indicating their public reception, by baptism, into the *visible* church. It was to the company of the disciples, thus increased, that there were added, day by day from that time on, such as were being saved, and were thus made ready for reception into the visible church.

Upon the basis of this apostolic example, I wish to rear a superstructure of answers to the question: "*Why should those who consider themselves Christians unite with the visible church of God?*"

I. A first answer to this question is, *Because church-membership will help one on in the Christian life.*

In speaking with a young convert recently, I said to him: "Now you must join the church at the first opportunity." He replied, "Don't you think a person can be a Christian without joining the church?" A few days afterward while calling upon a lady, I remarked: "You are a church-member, I presume."

"No," she replied, with a toss of the head, "I am not."

"You have sometimes thought of your duty in this regard, have you not?" I asked.

"Oh! I consider myself to be a Christian, and have for a long time," she replied; "but I don't see what's the use of joining the church."

"Why not?"

"Because I can be just as good a Christian without, can't I?"

These are individual examples of opinion upon this subject that are more prevalent and popular than we are accustomed to think. After we have made due allowance for those who *will talk* and must say *something*, there are a large number who find a stumbling-block just at this point, and need to be carefully conducted around it, lest they fall by the way.

To this end, let us first answer the two questions that are asked above.

To the first, *whether one can not be a Christian without joining the church*, I would reply, I presume he can. I would not deny the *possibility* of the case, any more than I would deny the possibility of one's being loyal to his country, in war times, although he may fail to go to the front when men are needed there. Joining the church does not *make* one a Christian. It presupposes that he is *already* loyal to his Lord and Savior Jesus Christ. It does, however, *bring him to the front* in the Lord's warfare. Now, although there exists a *possibility* of a man's being a Christian without joining the church, yet I must confess that I never could understand how a man can be *loyal to Christ and not want to be at the front*, any more than I can under-

stand how a man can justly claim love to his country and loyalty to her cause, and yet hide in the woods to escape being drafted. It does seem, that if one is *really a Christian* he will *want* to come to the front and join the church.

In answer to the second question above, *whether one can not be as good a Christian without joining the church*, I would reply, *No!* Membership in Christ's church *helps us* in the Christian life. By means of her fellowship we get *stimulus* and *strength*. We thus bring ourselves into association with those who have the same cause at heart. It contributes to the increase of one's *zeal*. The sharp click of the flint against the steel produces the spark. Love to Christ, brought in contact with love to Christ, produces Christian zeal. If you try to keep a fire alive with a single stick it is almost sure to go out. If you want your spark of patriotism kindled into a flame, go to the front; join the company of those in actual service; drill with them; fight with them; join in the songs of victory; and you will conclude that you never knew what patriotism was before. Don't boast of loyalty to the Master's cause when you are drilling in the company of the stay-at-homes. Not only go to the front in the Master's service, and report for duty, but get a place in the fighting ranks. Join the advance guard, if you can. Those who are stationed in the rear are most apt to flee when the shot and shell fall thick and fast. In the onward march, the rear guard have the greatest temptations to become, first stragglers, next deserters, finally traitors. If a man is in the front ranks, it is next to impossible for him to desert, for he is so surrounded by the loyal and fighting host that he can't fall back, and must move forward. Other things being equal, have you any doubt who will make the better soldier and will accomplish most for his country's cause—the man who thus bravely goes to the front, or the man who holds back and urges every excuse for staying at home? Who, then, will make the better Christian, the one who joins the church—the advance guard of Christ's forces—or the one who does not? Can you not see that you would gain *help* in the Christian life, and would make a better soldier of the cross, if you joined the church of Christ? Especially if you feel your own *weakness*, and *lack of faith*, and need of Christian *help*, and have *any fears that you may not hold out* in the Christian life—you should then by all means join the church, and gain a place in the foremost ranks. Men have said, at the beginning of battle, "Now I am going to get awfully scared, and may try to run; but don't you let me. You're an old hand at it, and are sure to stand. Now just keep me in place and don't let me become a deserter." Just so, many a young soldier of Christ, when fearful and about to retreat, has been *kept in place* by the veterans who fought beside him and urged him on, when, if he had not stationed himself there he would have yielded and fled from the field disgraced. If one loiters in the *rear*, who is there *behind* him to urge him on? We must not spend our time picking out trees behind which we are going to dodge in case we are defeated. Armies sometimes spare a fort they have captured, because it will make a good place of refuge in case they have to retreat. But the Christian soldier has no business to plan for failure. He should rather burn the bridges behind him, and thus render it impossible to retreat. Talk of *backsliding*! You can't *slide*

back unless there is an inclination in the backward direction. Join the church, place yourself in the front ranks, stand beside the veteran in Christ's service, and you will find it a wonderful stimulus and help in the Christian life.

II. Another answer to the question why you should join the church if you consider yourself a Christian is, *Because you thus identify yourself with the instrumentalities God has ordained for the advancement of his cause on earth.* There can be no question that Christ planned the establishment of the church, and that he ordained it to be the center of all activity and endeavor for the advancement of his cause. He said to Peter: "Upon this rock I will build my church" (Matt. 16: 18), thus promising an institution the basis of which should be a confession in him as the Son of God. He commanded regarding an offending brother, brought before two or three witnesses: "If he shall neglect to hear them, tell it unto the church; and if he shall neglect to hear the church, let him be unto thee as a heathen man and a publican" (Matt. 18: 17)—thus providing for a visible church which should judge whether a man were a true member of the invisible church. The company of the disciples whom Christ gathered around him were the nucleus of the church that was to be established by Christ, through the Spirit, at the season of pentecost, from which time on those who were converted were further added by the Lord unto the church. The invisible church is the true church, cleansed and purified and sanctified, and therefore it can not be to this but to the visible church, that Paul refers when he says that "Christ loved the church, and gave himself for it; that he might sanctify and cleanse it with the washing of water by the word, that he might present it to himself a glorious church, not having spot or wrinkle or any such thing; but that it should be holy and without blemish" (Eph. 5: 25—27). It is quite popular to say that Christ did not institute the church; but, like a great many things that are popular, it is very far from the truth. The church is the recognized means for the advancement of the kingdom of Christ. It was his disciples whom he commanded: "Go ye into all the world and preach the gospel to every creature." The visible church is the organized army of Christ. It is our place, if we would do our noblest for Christ, to be found in it. It may have unworthy members; there may be found within it enemies and traitors and spies; but that is no reason why we should not be found there. So much the more reason why we should join the ranks and counteract the influence of these who profess to be Christ's and are not. What would have been thought of a man who, in our nation's last great contest, should have said: "Why, yes! I am in favor of the Northern cause, and opposed to secession and slavery. I believe the former should be put down, and the latter abolished. But I think I can do more good in the army of the South than I can in the army of the North. I will serve there, and try to win men to the Northern cause. I will persuade them to desert, and join the Northern army. I can do more good by going among them as though I were one of them. I will find out their plans, discover their strongholds, and report them to the other side"—would not one of two things be true—either such a man would not be looked upon as loyal to the North, and his words would have no effect in winning men from the South, or he would be considered a spy, and the

enemy would carefully conceal their plans from him, and he himself would be cast out? Those who claim to be Christ's, and yet march with the world, upon the plea of the greater good they can do, will meet with similar results. Men of the world will say of them: "When they talk to us of joining the army of Christ, they don't mean what they say; for do you suppose that, if they were loyal to Christ, we should find them in our ranks? Not by any means!" Or they would say, "These men are spies. They are working for the other side, and are among us only to find out our plans and discover our strongholds. We must look out and conceal our purposes from them." In either case, those who would influence the world by marching in their ranks, fail of their purpose. Either their sincerity is called in question, or they are thwarted because their true purpose is suspected. Either men will distrust them or they will not confide in them. Christ may want spies to spy out the land, but he will choose them from his own ranks, and not from those who are marching with the enemy. If you would do something for Christ that is worth doing, join his regular standing army, and get your commission for service there. There is advantage in guerilla warfare when it is directed by the general in command, but otherwise it may do more harm than good. If you would accomplish your best work for Christ you must join the visible church of Christ.

III. Another answer to the question why one should join the church is, *Because by that means alone can we let our lights properly shine for Christ.* A gentleman said to me, "I call myself a Christian; I try to throw my influence on the side of right—what more is to be accomplished by joining the church?" The gain is, that until one joins the church the influence of his life can not be said to be all on the side of Christ. For example, I know a man of upright life, honest and moral, who called himself a Christian, who wanted to do all he could for Christ, who nevertheless had not seen his way clear to join the church. He thought that he was doing all the good he could, and was influencing other lives for Christ. I discovered a far different state of affairs. I found that unconverted men were pointing to him as their example and excuse. They were saying of him, "There's the man I pattern after. If he can be as good a man as he is without religion, I'm willing to take my chances." That man was letting his light shine before the world, but he was not letting it shine for Christ. He was in reality against Christ instead of for him. He was not setting up a righteousness of his own, but he was leading men to think he was, and so was exerting an influence against the Master's cause. The enemy were counting him on their side, when he counted himself on the other side, and all because he did not come out and unite with the church and proclaim where he stood. It was for self and Satan that his light shone, and not for Christ. Christ says, "Let your light so shine before men that they may see your good works and glorify not you, but glorify—YOUR FATHER WHICH IS IN HEAVEN." No matter how large and glaring a watch-fire you may build, and no matter what your purpose may be in building it, if you build it in the enemy's camp it shines to their advantage, and to the disadvantage of the forces of truth and righteousness. If you would make sure to cast no uncertain ray of light, you must at once pitch your

tent among the loyal forces of Christ, otherwise you may *mislead* men rather than *save* them. If you are going to build a fire upon the shore, so that some lone fisherman, lost in the darkness upon the sea, will be attracted by it and steer toward it, it makes all the difference in the world where you locate it. You may think that you know a *better* spot to place it than that where it is usually built—it may be a *loftier* place, and the glare of the fire may reach out *further* across the sea—yet *how do you know* but that in steering for that point the vessel may be dashed to pieces upon the hidden rocks, while the path of the sea is *clear* to the other point? If hundreds of fishermen have been guided aright by the light when stationed at the accustomed place, is it not wiser to build there than to risk the dangers of another and an untried point? The church is the *lighthouse* of God. If you have a brilliant light place it *there*, and not upon another rock, or you are almost sure to mislead the seaman who is seeking guidance to the harbor of peace.

IV. Still another answer why, if we are Christians, we should join the church, is, *Because it's our plain duty, Christ has commanded it*; and when Christ commands, there can be no question as to what is right. Do you ask a place in the Bible where he commands it? Turn to Matt. 28:19. There you read: "Go ye therefore, and teach all nations, baptizing them;" or, "make disciples of all nations, baptizing them." The followers of Christ are commanded to "disciple," or "convert," all nations; but they are just as plainly and emphatically commanded to "baptize" them. Both obligations are placed upon them. Now, if it was the duty of the disciples to baptize their converts, inversely it was the duty of the converts to be baptized. Read this same command as given in Mark 16:15, 16: "Go ye into all the world, and preach the gospel to every creature. He that believeth and is baptized shall be saved." We hold, of course, that those who believe and die without the opportunity of being baptized, are saved; but who can doubt, from these passages, that it is the duty of those who believe, to be baptized? Now, what is baptism, objectively, but the mark of reception into the visible church? The command, then, to be baptized, is identical with the command to join the church.

Take into consideration another passage: Paul, in the words of the institution of the Lord's supper, quotes from Christ the command: "This do in remembrance of me" (I. Cor. 11:25). Every disciple of Christ is directed to "show forth the Lord's death" by participating in the celebration of the Lord's supper. Now, there are many who believe that none should partake of the Lord's supper unless they have first become members of the visible church of Christ. That is my belief. The sacraments of the church should be confined to the members of the church. Especially if one neglects or despises church-membership, I doubt if he has a right to this sacrament which Christ instituted for a remembrance of himself. How, then, can one obey Christ's command to thus "show forth his death" unless he joins the church? He is simply living in disobedience to one of Christ's plainest commands. Still another passage demands our consideration. In Matt. 10:32, 33, we find the words of Christ: "Whosoever, therefore, shall confess me before men, him will I confess also before my Father which is in heaven. But whosoever shall deny me before men, him will I also deny before my Fa-

ther which is in heaven." Who, after reading those words, can dare to hope that Christ will confess us before the Father if we do not confess him before men?

"But," you say, "I confess Christ with the life, and not with the mouth—actions speak louder than words."

So far, so good. We don't want the mouth-confession without the life-confession, to be sure; but Christ wants both. In this plain passage, we have no right to read different meanings into the word "confess," according as it is applied to *ourselves* or to Christ. When Christ says, "Him will I confess before my Father," he means a confession of the mouth. So when he says, "Whosoever shall confess me before men," he likewise must mean a confession of the mouth. If we expect that Christ will say of us, before the hosts of heaven, at the last day, "This is my child," we must say of him now, before men, "This is my Savior."

Now we are ready to read that wonderful passage in Rom. 10:9, 10, and read it understandingly: "If thou shalt confess with thy mouth the name of the Lord Jesus, and shalt believe in thine heart that God hath raised him from the dead, thou shalt be saved. For with the heart man believeth, but with the mouth confession is made unto salvation." You can fully obey the commands of Christ only by coming out boldly before the world and joining the church on confession of your faith in Christ. To confess Christ by the daily life, to speak a word for him in private, to take an occasional part in the service of prayer—all this is excellent, but not sufficient. If we would be partakers of the full and free salvation of Christ, we must make the freest and fullest confession of him, before the world, that it is possible for us to make; and to this end we must be added unto the church with those that are being saved. Thus does it become us, in imitation of Christ, to fulfill all righteousness.

The answers to be given to the question, "Why should those who call themselves Christians join the church?" are thus seen to be:

First, because the church-membership helps one on in the Christian life.

Second, because one thus identifies himself with the means God has ordained for the advancement of his cause.

Third, because thus alone can one let his light fully shine for Christ.

Fourth, because it is a plain duty, Christ having commanded it.

These answers should come with convincing force to three classes:

First, to those who have just started in Christ's service. Shall such join the church? By all means! Where else could they go? Where shall the prodigal return but to the father's house? Where shall the reclaimed lamb be taken but back to the fold from which it had wandered, and there be safely sheltered within? If left without, it is almost sure to wander away again. Some question whether it would not be better for them to wait awhile, to see whether they will persevere in their Christian lives. Emphatically, No! That is planning for defeat. Leave the lamb without the fold over night to see if it is inclined to run away again? Others think that they will delay until they feel more worthy to come. If they wait for that, we hope and believe that they will never come. We never want to feel

worthy of joining the church. It is not that *we* are worthy, but that *Christ* who died is worthy, and we come in his name. We do not profess to be *sinless*, but *sinners saved through Christ*. If there is in the heart a godly sorrow for the past, a sense of sin forgiven, and a firm determination to serve Christ in the future, then you should come at the *first opportunity* and offer yourself for reception into the church of Christ. It is *always a mistake to wait*. Your duty is clear. "This do"—and there can never be any good excuse for the neglect of a plain duty. It is your duty to join the church, and the first opportunity is the Lord's time for the performance of that duty.

Second, to *Christians in disguise*, sometimes self-styled "*secret Christians*." Yet what a *secret Christian* is, I hardly know. Christ says: "No man, when he hath lighted a candle, covereth it with a vessel, or putteth it under a bed; but setteth it on a candlestick, that they which enter in may see the light" (Luke 8 : 16). What can be the *object* of having the light of a Christian hope lighted within the heart, and then covering it up so that no man can see the light? Is it because *ashamed* of Christ that such as these sometimes conceal the light? "Who-soever shall be ashamed of me and of my words in this adulterous and sinful generation," says Christ, "of him shall the Son of man be ashamed when he cometh in the glory of his Father with the holy angels" (Mark 8:38). How can a man be Christ's and not want others to know it? One would think that he would want to proclaim it to all the world, if really and truly a "child of the king." Such as are engaged in seeking a place in which to hide their light, either never were Christ's, or have ceased to be Christ's, or will soon no longer be Christ's. Hiding a light beneath a bushel not only keeps it from shining, but also causes it to grow dim, and at length to go out. You must place your lamp upon the high stand of a public confession of Christ, if you would have it truly shine for him.

Third, to *lapsed members*. How many there are, who were once church-members, who now are not! Ask them whether they are members of the church, and they will answer that they are. In reality they are *lapsed* members. This comes about in various ways. Many change their residence, and fail to take a letter of dismissal with them, because, as they say, they "expect to go back some time." Thus they are classed as "absent members," and at length their names are stricken from the list. Church-membership amounts to nothing after one has been absent a year or two. Few churches would count such an absentee a member at all. Others go to another place to reside, expecting to stay, and take a church-letter with them, but neglect to present it to any local church. Such can be classed, if at all, simply "pocket members," or "bureau-drawer members." They are placing a "pocket veto" upon the law of church-membership enacted by Christ. There are people in every community who are in reality Christians, who are ranked as "non-Christian" because they have failed to unite with any local church, and thus let people know where they stand. It is just as much our duty to *keep up* our membership in the church of Christ as it is our duty at the first to *join* the church of Christ. Neglect of this duty is the first step toward carelessness in the discharge of other Christian duties, and indifference toward the interest of Christ's cause in the community where we dwell.

I have thus plainly presented the reasons why, if you are a Christian, you should be a member of Christ's church. I beseech you to weigh them, and not to dismiss them from your mind, as you value your soul and love Christ's cause, till you have *seen your duty clearly in this regard*. Behold the truth as it is. Pray God for guidance. Determine that you will fully confess Christ before the world, and thus become a part of the church which he loved, and for which he gave himself, that he might sanctify and cleanse it, and at length present it unto himself without blemish. And the God of all peace abide with you evermore. Amen.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

SWARMING, FOUNTAIN PUMP, ETC.

DURING the last week or ten days we have been having an unusual amount of swarming. Beginning with the 4th of July, the weather, instead of being stormy, has been fair, and every thing has been favorable for the secretion of nectar. Honey has been coming in at a faster rate than we have seen it before for several years. We have had an average of about seven swarms a day, and Sunday has been no exception. Mr. Spafford had about all he could do to take care of the apiary, and fill orders for bees and queens, to say nothing about bothering with swarms. Your humble servant has been obliged more than once to leave matter for GLEANINGS heaped up on his desk, and go out to the apiary to help Mr. Spafford. Sometimes we had three or four swarms in the air at one time. One day after I had waited half an hour, or twenty minutes, for a swarm to cluster, and still they were flying around without showing any disposition to settle, I became disgusted. The fountain pump had been recommended, but heretofore we had never given it a trial, although good bee-keepers like James Heddon and others had recommended its use. A pail of water and a fountain pump were procured. "Now," thought I, "we will see whether you'll settle or not." After quickly adjusting the spray nozzle, I began pumping the spray among them where they were flying thickest. Sure enough, it had the desired effect. After about half a pail of water had been thrown, some of the bees began to settle on the grapevines. When the entire contents of the pail were exhausted, there was a decided settling on the part of the bees. Laying down the Whitman pump I grasped the Manum swarming-arrangement (which is always in sight), jarred the bees into the basket, and had the satisfaction, in a few minutes more, of seeing the cluster hanging from the basket.

On another occasion two swarms came out almost simultaneously, from hives remote from each other. As the bees from each soared into the air, I perceived that they were gradually circling together. "Now," thought I, "I will see if I can not separate you, or, rather, prevent you from ever getting together." I began spraying the outer edges of the flying bees of the

swarm in the air, nearest to me. Those bees receiving the spray began to retreat very perceptibly. I followed up my advantage until I had them driven quite a little distance away. The other swarm, in the meantime, was coming up. I began dousing them in a similar manner, and soon had the satisfaction of seeing them retreat. Each was then sprayed, when they were hived, as before explained.

Last Sunday, the 7th, before I had a chance to get my breakfast, a swarm was out. Before I had got them fairly hived, another swarm came out. I was about to hive these, when Mr. Calvert (my brother-in-law) came to spell me. It had been previously arranged that I was to take care of the bees in the forenoon, and our Mr. Spafford in the afternoon. Some three or four swarms had come out during the morning. After breakfast I relieved Mr. Calvert, and, with lesson-helps in hand, I perched myself under the shady veranda of the house-apary, in full view of every colony in the yard. As I studied about Samuel, my eyes now and then took in a survey of the apiary. Fortunately the bees behaved themselves for a full hour. When church was out, Mr. Spafford relieved me. On returning from Sunday-school we found some swarms had come out, and that one was already in the air. This one seemed determined to alight upon the top of an evergreen-tree. Now, none of us relished the idea of climbing this tree, with our nice Sunday clothes on. Accordingly, I removed the spray nozzle of the Whitman fountain pump, and screwed on the stream nozzle. Although the bees had formed quite a little cluster, I felt pretty sure that I could dislodge them. I began to shoot a solid jet of water directly at them. This had the effect of stopping the bees from clustering there any further, as well as having the other effect of dislodging some of those that were already on. I could not dislodge the latter entirely, and left them, as I noticed that the rest of the swarm seemed to think this was not a desirable place, dripping as it was with great drops of water. They started to cluster upon another spot, not exactly an accessible one. The stream nozzle was directed at them as before. Again they took another position, and very soon we had a nice cone of bees hanging where we could reach them easily with the Manum swarming-basket. After about half the bees had settled, the cluster was jarred into the basket, which was then closed. The tripod was then adjusted, and soon we had the satisfaction of seeing the swarm hanging right from the swarming-basket instead of from the top of the evergreen.

Besides the facility with which a swarm may be induced to settle by the use of the fountain-pump, and besides the other advantage of dislodging them from an almost inaccessible position, it may be used to very good advantage in preventing bees from clustering upon their former point of attachment; that is, the place where they had previously been clustering. After shaking the bees into the Manum basket, there is always about half of the bees that persist in

clinging to the old limb. I found that, by dousing it thoroughly with water, the bees will let it alone entirely, and soon cluster on the basket, just where they are wanted.

DRIVING A SWARM IN THE AIR LIKE A FLOCK OF SHEEP.

The feature of being able to drive a swarm like a flock of sheep is a valuable one. Some of you may doubt this; but I assure you I have been successful thus far in driving and cornering up whatever swarm I experimented upon. This morning a swarm of some eight or ten pounds of bees was making straight for a hickory-tree on the outside of the apiary. This tree is some forty or fifty feet tall. I hallooed to Fred, a new hand in the business, to run around them and head them off with the fountain pump. He did so, and it made me feel—well, *real good* to see them halt, then retreat before the spray and finally settle where we wanted them to. Another swarm started to leave the premises, evidently with the full determination of making straight for the woods. The fountain pump was on hand, and, as before, we made those truant bees turn right about face, and finally to settle down upon a low grapevine. Perhaps I should state right here, that two or three days before we commenced using the fountain pump, we had one swarm that actually absconded. One of our boys chased after them until he came to some swampy land, when he had to stop and see them go off.

The timely and skillful use of the fountain pump, I think, would keep almost all the swarms from going outside of the premises of the apiarist. All he has to do is to head them off, and keep spraying them until they conclude they will *have* to settle. The effect of the spraying not only impedes the flight of the bees by dampening their wings, but it may have the effect of making them think that it is raining, and that they had better put aside their purpose. After spraying the bees for some time, I have seen them become so tired, evidently, that they would drop down from exhaustion. With their fore legs they would rub their eyes; with their middle legs they would rub the thorax, and with their hind legs they would dry their wings. It is a little amusing to see them brush themselves up after a good dousing.

Sometimes it is not advisable to use a fountain pump. Just as soon as a few bees show a disposition to cluster upon any particular place, we cease from forcing water upon them, unless, perchance, some other bees are trying to establish another location for a cluster more inaccessible. Again, with a very strong swarm I find that it takes a very large amount of spraying to have any effect upon them.

THE SMITH PUMP NOT SUITABLE.

I have tried our cheap dollar pump, but it won't answer at all for spraying swarms, although it will do very well for garden purposes.

THE FOUNTAIN PUMP, AND CLIPPING QUEENS' WINGS.

The use of the fountain pump might be

largely if not altogether dispensed with if we clipped our queens' wings. Swarms could then be hived in exactly the same manner as A. E. Manum described and illustrated a year ago. Still, a great many times a swarm will come out with a virgin queen. It is then that the fountain pump with two or three uses will pay for itself. Were it not for the fact of our filling orders, and the preferences of our different customers, I do not know but I should be in favor of clipping queens' wings here at the Home of the Honey-bees. One colony having a valuable imported queen, swarmed out. We made them come down, secured them in the basket, and hived them on foundation with a frame of unsealed brood to hold them. The next day a number of swarms came out; and as several came out simultaneously it was impossible to locate the source of each one. Toward the close of the day, when we examined the recently hived swarm with the imported queen above mentioned, I found that they had decamped, leaving only a few hundred bees to take care of the frame of brood. That they were somewhere in the apiary, and had been hived, I had no doubt; but where, was the question. If her wings had been clipped, we could have secured the swarm by itself.

HIVING UPON UNSEALED BROOD.

Out of some 35 or 40 swarms which we have hived during the last few days, as nearly as we can make out some 7 or 8 of this number have actually left their frames of unsealed larvæ. While a frame of brood tends very greatly to hold the swarm, it is by no means infallible.

GLEANINGS IN BEE CULTURE.

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A. I. ROOT,
EDITOR AND PUBLISHER,
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MEDINA, JULY 15, 1889.

I had rather be a doorkeeper in the house of my God than to dwell in the tents of wickedness. PSALM 84: 10.

BUSINESS UP TO DATE.

We are still having quite a run of business, and it is approaching the middle of July. Orders usually begin to slacken up about the first of this month. We expect to be entirely caught up in a day or so.

MORE IMPROVEMENTS AT THE HOME OF THE HONEY BEES.

WELL, we have not got to tear down our barns and build greater, exactly, but we are obliged to add more boiler capacity. We are now making preparations to tear down our 60-foot chimney, and build in its stead another one 80 feet tall, 38 inches in diameter inside, with an 8-ft. base. We expect to add another boiler, alongside of our old one, to

give us a boiler capacity of 120 horse-power. Our business has been such that our 60 horse boiler has hardly been adequate to keep the machinery moving at full speed.

THE POULTRY DEPARTMENT OF THE CANADIAN BEE JOURNAL.

We have for a long time wanted to congratulate the *Canadian Bee Journal* on securing the services of so competent a person as W. C. G. Peters as poultry editor. He is full of the subject, and his editorials show that he has had a great deal of practical experience.

THE SEASON IN AUSTRALIA.

WHILE we bee-keepers of the Northern States are enjoying a good honey-flow, and some hot weather, the bee-keepers of Australia are now fairly into winter. The *Australian Bee Journal* for June 1, 1889, says: "We are now fairly into winter; and if the instructions given previously have been carried out, the colonies should be in good condition to withstand the cold and damp to be expected during the next month or two." This does not sound much like our weather here, does it? Seasonable hints for Australia would hardly be seasonable for the United States.

THE HONEY-FLOW AT THIS DATE.

HERE it is July 12, and the honey is still coming in at a good rate, but basswood has not begun to yield to any extent yet. In fact, it is doubtful whether it will yield at all in our locality. In the basswood orchard, some two miles to the north of the Home of the Honey-bees, there is only about one tree that has even buds on, out of the 4000, so our basswood orchard probably will not yield any great amount of nectar this year. As nearly as we can discover along the roads, there are very few basswoods out anywhere. Evidently it is one of the off-years for this favored tree of the bee-keeper. *Later.*—Honey is coming in some from basswood after all.

OFF FOR WISCONSIN.

THE senior editor started for Wisconsin, Thursday, July 11. Blue Eyes accompanies him as far as Chicago, whence she takes the steamer for Manistee, Mich., where she will visit relatives. From Chicago, A. I. Root will go to Dr. C. C. Miller's, in Marengo, Ill., and thence he proceeds further to the northwest to that great basswood belt in Richland Co., Wis. Basswood is expected to be at its height about the time he will arrive there, which will be about the 15th or 16th. He has taken along with him a little Kodak camera, to take views of apiaries, gardens, etc. He was given full instructions how to "shoot it off," and it is expected that he will write up this trip, and perhaps illustrate it in the forthcoming issues of GLEANINGS.

SOMETHING FOR OUR GERMAN BEE-FRIENDS.

WE have just received from C. J. H. Gravenhorst a little work in the German language, called the "Bee-keeper's Album." It contains 51 pages of matter devoted to biographical sketches of some of the leading lights in apicultural science; namely, Dzierzon, Langstroth, Baron Berlepsch, Pastor Schonfeld, Hruschka, Mehring, Baron Ehrenfels, Kanitz, Louis Huber, Weygandt, Cowan, and Sartori. Elegant portraits of all those men are given in the highest style of the engraver's art. Many fine cuts of hives, apiaries, etc., are also given. As the present work is No. 1, we presume that friend Gravenhorst is going to publish at stated intervals

more of a similar character. We trust that such is the case; for although the language is foreign to us, the pictures are readily translated into any tongue desired. The price is, we understand, 50 pfennig, or half a mark—which would be equivalent to 12 cents. The paper and printing are of the very best. We cordially recommend the work to all who can read German. The book is $7\frac{1}{2} \times 6\frac{1}{2}$ inches.

MAKE ALL YOU CAN OF THE FAIRS.

OUR experience last fall at the Ohio Centennial at Columbus has taught us that much can be done at fairs toward educating the people in our favorite pursuit, and correcting many of the false ideas current among them. Much can be done toward correcting the public mind on the subject of manufactured (?) honey by distributing our \$1000 reward cards, and by having a comb-foundation mill, with samples of wax sheets before and after they have passed through the mill. The worst falsehoods are those which contain a grain of truth, and there is no doubt but that the comb-foundation industry furnishes a foundation and gives strength to the story of manufactured comb honey. In the minds of the great mass of the people, except those directly interested in the use of comb foundation, this product has made a vague impression, and it is not strange, knowing human nature as we do, that this foundation is exaggerated into fully completed comb, and filled with honey or a substitute. One of the best ways to correct the false notions, and shear off the great overgrowth of imagination from the facts is to show to the masses at the fairs how comb foundation is made, explaining the impossibility of accomplishing the manufacture of complete comb honey. Have a piece of natural comb and a piece of the thinnest comb foundation and a magnifying-glass, so that each may be examined. Hand to the skeptical and unbelieving one of our reward cards, offering \$1000 for proof to the contrary of your statements. In all your efforts, be patient and Christlike, remembering that these neighbors who have been misinformed have not had your opportunities for knowing the facts. If this policy is persistently carried out there can not fail to come increased confidence in bee-keepers as a class and their product, and increased consumption of honey.

THE PARIS EXPOSITION, AND THE UNITED STATES HONEY EXHIBIT.

The Paris correspondent of the *British Bee Journal*, under date of June 27, says:

The United States have a very considerable exhibit, contributed by nearly all the leading makers in the States, and shown as a joint collection. It is arranged on a floor-space of about 30 ft. long by 4 feet wide, and on the walls above are various small articles; also the well-known diagrams by Mr. Cheshire, of the British Bee-keepers' Association.

In regard to our own exhibit, he continues:

Mr. A. I. Root, of Medina, O., of course is to the fore. He shows his well-known lawn hive, his two-story hive, and his $1\frac{1}{2}$ -story hive. These are so well known as to need no further comment. There is also one of his latest natural-based foundation-machines, and a large can for catching the wax cappings when extracting is done on a large scale, as it is in the States,

Of W. T. Falconer's exhibit he says:

Every thing is got up in splendid style, and is clear varnished.

The world-wide word "Chautauqua," as applied to Falconer's hive, is disguised by the printers, doubtless, under the name "Chantangua."

Of the sections made by G. B. Lewis & Co., of Watertown, Wis., the correspondent says:

For an article that is produced by the million, they can not be surpassed.

Dr. Tinker's perforated zinc is very much admired, and the writer is very anxious to know where the doctor gets such perfect zinc. Why, he makes it himself, at his home in New Philadelphia, O. Of Dadant & Son's foundation the writer says:

It is so thin and clear that their name, which is printed on paper, and placed behind the foundation, shows plainly, and can be read easily through it.

The honey show itself is pronounced as nothing remarkable. Some of the honey was broken in shipping. "There is not really," it is said, "a well-finished section in the whole lot." The writer closes up by saying:

The inscription on top of the large stand is in letters constructed out of four-piece sections, and is very pretty, and in good taste. It reads thus: "Les insectes nuisibles et utiles," and the remaining three glass cases are filled with the specimens of the useful and harmful insects of the United States.

THE ST. JOSEPH EXPOSITION.

ONE of our subscribers, Mr. Thos. B. Nichol, of St. Joseph, Mo., forwards us some of the advance proofs of the premium-list of the St. Joseph, or, as it is called, the New Era Exposition. In looking down over the rules and regulations we note the following:

It has been urged by those responsible for the financial success of the exposition, that unless the horse-jockey had a chance at a purse of thousands of dollars, while the farmer competed for premiums of from fifty cents to five dollars, the exposition could not be sustained.

The New Era Exposition will try the experiment of reversing the order of things, relying on the agriculturists (who have hitherto loudly and justly complained) for an appreciation of efforts and a hearty co-operation.

This we believe is a step in the right direction; and the sooner the managers of our expositions begin to see it, the better it will be for them financially. The premiums offered on comb and extracted honey, bees and queens, in the Bees and Honey department, are some of the largest we have ever seen. No. 21, display of comb honey, largest and most attractive, first premium, \$50.00; second, \$25.00; No. 22, display of extracted honey, largest and most attractive, first premium, \$50.00; second, \$25.00. No wonder that the St. Joseph folks can afford to offer more for farm products when the horse-jockey is made to take a back seat. Instead of getting his thousand or two thousand dollars, he must be content with his proportion if he gets any at all. Let us take a case in point: The Buffalo International premium-list is at hand. While they offer quite a number of premiums of \$600, \$400, \$300, \$200, and so on, for single horses, the premiums on regular farm produce scarcely ever go beyond 10 or 20 dollars. The Buffalo Exposition alone offers something over \$11,000 in premiums for blooded horses alone. The same exposition offers about as many hundreds for the products of the soil. Perhaps we should mention that the Buffalo International Fair, to be held Sept. 3-13, offers very liberal premiums in the apiarian department—something like \$450. For comb and extracted honey there are two \$30.00 premiums—a number of \$15.00 and \$10.00 premiums. But they offer only a silver medal for apiarian supplies. Guess we won't exhibit this year. Mr. O. L. Hershisser, formerly a student at Lansing, Mich., under Prof. A. J. Cook, has charge of the department.

DON'T SELL TOO CHEAP.

The following very reasonable note came to hand just as we go to press. Those who have honey to sell had better bear in mind friend Heddon's suggestions.

Pleased at the partial improvements upon the past two seasons, many bee-keepers have been praising 1889 as a honey year. It begins to look plain to me that taking the country all over, we are not going to have an average crop by considerable. The past two poor seasons have cleared the market of honey, and got consumers into the habit of paying better prices than formerly. As it is a fact that we need it to keep our business equally profitable with other lines, let us hold up to this price. In this location the season's not as good, up to this date, as within the past two very poor years. We have not one-sixth of a crop. Basswood is in full bloom, fully half past, and not any thing like an average yield so far. Clover bloomed profusely, but yielded very stingily. This end of the white-honey crop. Pleurisy is not yet plentiful enough here to produce surplus honey to much extent in so large apiaries as I keep. It is just getting into bloom, and the bees are thick upon it, while they leave every other plant except that, for the basswood. We can see the honey standing in the jars some in little drops, and the bees crawling all over it, rapidly loading and going home. Only a few years ago we could not find a dozen plants within the radius of our apiaries. In a few years more we expect it to yield us a good surplus crop, if nothing unforeseen happens. Do not be in a hurry to dispose of your honey. Whatever you do sell early, do not sell it cheap. Let us wait till we see that we have to.

Dowagiac, Mich., July 13.

JAMES HEDDON.

SPECIAL NOTICES.

DECLINE IN BEESWAX.

We quote a decline of 2 cts. per lb. in price of wax from that last quoted. Revised prices will be 23 cts. cash; 26 cts. in trade for average wax, delivered here. To those who wish to buy, the price will be 28 cts. for average quality, and 32 for best selected. If those who send us wax would put their name and address on the package, or on a slip of paper in the package, so we could have a clew as to where it comes from, it would save us much trouble and annoyance.

A DROP IN THE PRICE OF THE WHITMAN PUMP.

We have received lower prices from the manufacturers of this excellent article, the merits of which are set forth in Our Own Apiary. It is only fair that we give our customers the advantage of the decline. Our catalogue price is \$7.50. We will now offer them for \$6.00 each; in lots of 3, for \$5.50 each. For larger quantities, write for prices. They may be sent by mail for 60 cts. each extra. Our old price was \$7.50. This is a strong brass pump, and will send a stream of water perpendicularly 40 feet, or it will send a spray, such as is used for bringing down swarms, 30 feet high. Of all the pumps we have experimented with, none answer so well as swarm-arresters as the Whitman.

DISCOUNT ON GOODS FOR FAIRS.

In view to the education of the people to more correct views of our pursuit, as indicated in an editorial elsewhere, we will, as has been our custom for years, furnish samples at a discount. All goods of our manufacture will be furnished at 25 per cent discount, the only conditions being that you will be allowed a discount only on samples (one of a kind), that they must be entered for exhibition at one or more fairs, and that you distribute judiciously the advertising matter we send along with the goods. If you secure any premiums, the money thus secured is yours for your trouble, in addition to the commission we allow you when you buy the goods. We will consider a box of 500 sections, 1 lb. of each grade of foundation, 50 brood-frames, flat, 50 wide frames, as units, and subject to discount as samples. We will also furnish free all you can judiciously use of the \$1000 reward cards.

AN ATTRACTION FOR FAIR-EXHIBITS.

Some of our old customers will remember that we used to advertise and furnish sections 4½ in. square, with fancy-shaped center, such as stars, hearts, diamonds, etc. We have not made these of late, but we have had frequent calls for letters to be filled with comb honey by the bees, to form mottoes. We have never been well equipped for making these till now. We have a full set of pattern letters to work from, and they are of such a size that three will fill an 8-section wide frame, the

openings forming the letters being about 7½ in. high and 5 in. wide. M and W, of course, are wider, and I narrower. The letters are of the following pattern:

FAIR, 1889.

The price will be 10 cts. per letter or figure. With thin foundation inserted, 15 cts. per letter or figure. In ordering, if you will write the letters in the order you want them, we can make 3 letters in one piece, just right to slip into a wide frame. Or if you don't happen to have a wide frame, simply tack a bar on top, to suspend it from, and hang it in the hive without a frame around it. The 4 figures, 1889, will go in a frame. To make the letters, we simply tack two ¾-inch boards together, mark the letter, and jig it out on a scroll-saw. To put in the foundation, separate the boards, lay a sheet between, and tack them together again. We make the letters large, because the bees will work in them more readily, and they are much more conspicuous when filled.

PREMIUM OFFER.

To those intending to make an exhibit, and who will agree to distribute judiciously the circulars we will send, we will furnish free one letter or figure for each dollar's worth of goods ordered, if the order amounts to \$4.00 or more. If foundation is inserted in each letter, we will furnish 2 letters for every \$3.00 worth of goods ordered.

KIND WORDS FROM OUR CUSTOMERS.

I received the package of tomato-plants at 10 p. m. last night; placed them in a little water over night, and potted them this morning. They were in prime order, hardly wilted, or a leaf injured. They can not fail to grow. I hope to have a good report to make next fall. CHAS. J. JACKSON.

Newton, Kan., June 27, 1889.

GOT HIS DOLLAR'S WORTH.

We all enjoyed reading your travels very much, and, in fact, all the Home talks and good things. If a bee-keeper can't get a dollar's worth from GLEANINGS he surely does not read and profit thereby. Please renew my subscription for one year. R. R. RYAN.

Bradshaw, Neb., June 13, 1889.

THOSE DOVETAILED HIVES "RIGHT TO THE DOT."

I am well pleased with those ten Dovetailed hives I received of you; they are right to the dot, and don't you forget it. I put up the 500 sections which came also, without breaking a single one in the bunch. MARTIN F. WILLIAMSON.

Friendly, W. Va., June 17, 1889.

HOW THE BUCKWHEAT WENT OFF.

Before I forget it I owe you a vote of thanks, or that doesn't exactly express it. I am very thankful to you for your kindness. I will try to make good the amount on GLEANINGS. It has sent me half a dozen calls for buckwheat. Can't a man touch you without getting himself spread out? Well, I will make it all right some time. J. H. KENNEDY.

Quenemo, Kan., June 12, 1889.

THE DOVETAILED HIVE JUST THE HIVE FOR THE GREAT MASS OF BEE-KEEPERS.

The Dovetailed hives ordered of you arrived in first-class order, and freight very moderate. We admire your ingenious method of crating, and are much pleased with the hives. We consider the Dovetailed as just the hive for that great class of bee-keepers who, farmers also, make bee-keeping an extra; have few appliances for putting hives together, and devote their attention to the production of comb honey exclusively. R. N. LEARNED.

Newton, N. J., May 27, 1889.

FOR SALE.—Italian queens, tested, at \$1.00 each, 6 for \$5.00; untested, 75 cents each. No foul brood. 12td L. A. RESSLER, Nappanee, Ind.

WILL pay 10 cents each for Oct. 1, 1882, number of GLEANINGS. A. I. ROOT, Medina, Ohio.

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SPECIAL NOTICES.

HONEY QUEENS.

There has been such a call for honey queens from that imported queen spoken of on page 508, June 15, we have decided to sell her daughters at the following rates: Untested, \$1.50; tested, \$3.00; select tested, \$4.00. The mother of these queens still sustains her former reputation, and her bees prove conclusively that gentleness and energy make a successful combination. We also have one other imported queen whose bees are about as gentle and as good workers as the other one. Her daughters will be sold at the same price. Her queens, if any thing, are a trifle yellower. Be sure to mention, in ordering, that you want a "honey queen," otherwise we shall send you our regular queens.

SEEDS AND PLANTS SUITABLE FOR AUGUST PLANTING.

Asparagus, Palmetto. Oz., 10c; lb., \$1.50.
 Beans, Dwarf German wax. Pint, 10c. By mail, 8c extra.
 Beets, Eclipse. Oz., 5c; lb., 60c.
 Carrots, Early French Forcing. Oz., 10c; lb., \$1.00.
 Celery-plants, Henderson's White Plume, Golden Self-blanching, Golden Dwarf, or Boston Market. 10 plants, 5c; 100, 40c; 1000, \$3.00. If wanted by mail, add 5c for 10, or 25c for 100.
 Corn, Corey's Extra Early. Half-pint, 5c; quart, 15c. By mail, 12c per qt. extra.
 Cress, or pepper-grass. Oz., 5c; lb., 50.
 Cucumbers, Early Frame, Nichol's Medium Green. Oz., 5c; lb., 60.
 Grand Rapids lettuce, Henderson's New York, or Boston Market. Oz., 15c; lb., \$2.00.
 Onion, Mammoth Silver King. Packet, 5c; oz., 20; lb., \$2.50.
 Onion-sets, Winter or Egyptian. Qt., 10c; pk., 75c. By mail, 10c per qt. extra.
 Parsley, Fine Curled or Double. Oz., 5c; lb., 50.
 Alaska peas. Pt., 10c. By mail, 8c extra.
 American Wonder peas. Half-pint, 10c. By mail, 4c extra.
 Radishes, Scarlet Globe, Lady Finger, Chartier. Oz., 5c; lb., 60c.
 Radishes, fall or winter. Oz., 10c; lb., \$1.00.
 Spinach, Extra Curled. Oz., 5c; lb., 35.
 Turnip, White Egg, or Purple Top White Globe. Oz., 5c; lb., 40c.

STRAWBERRY-PLANTS.

Of these we have a plenty of extra nice Jessie or Sharpless; 10c for 10; 75c per 100; \$5.00 per 1000. Of Bubach we have also a good supply of nice plants. Prices are double those above. All strawberry-plants sent by mail at an additional expense of 3c for 10, or 15c for 100. I would advise that strawberry-plants be set where they can be shaded, unless we have plenty of rain. If the weather is exceedingly dry, they may require watering as well as shading to save them. A good watering, however, just before the plants are covered with a good

mulch of straw, leaves, or swamp grass, or something of that sort, will usually take them through the most severe drouth. Orders for strawberry-plants are liable to be delayed unless we have rains frequently.

KIND WORDS FROM OUR CUSTOMERS.

OUR HOMES.

I wish I could take you by the hand and have a good long talk with you. Our Homes does me more good than any sermon I ever heard. I would not do without GLEANINGS for almost any thing. Our Homes is written in such simple words that almost any one can understand it; and as I am not a man of "over-high" education it just suits me exactly. May you live long, and keep on doing good.

Carpenter, Ill., June 11, 1889. Ed. E. SMITH.

ONE WHO LOVED GLEANINGS.

How lonely is our home! Father died the 24th of May, aged 72 years. There are only four of us at home—mother and two sisters and myself. Father had been failing for the last two years. He was always a lover of bees, and he was always a great lover of GLEANINGS. He could not work, but would watch for GLEANINGS. The May 15th number came too late for him to see it. It came two hours before he passed away. He asked, every time we went to the office, if we got GLEANINGS. He could read some, and it passed away the time for him. Oh, how lonely it is without father! Almost his last words to me were to tell how he wanted me to fix some bees for a neighbor who wanted some. Father had read GLEANINGS for years, and we still expect to read it until we too are called up higher to meet him.

MARY E. COKELEY.
 Ritchie, W. Va., June 11, 1889.

ONE WHO IS NOT A CHRISTIAN, BUT YET LOVES THE FRUITS OF CHRISTIANITY.

It does me good all over in spots as large as a blanket to see the kind, conscientious, and prompt manner in which you do business. I appreciate and love people who wear their religion every day, as well as Sunday. Although I belong to no church, I try to do right and be honest. I like genuine, honest, and religious people, but I detest hypocrites.

W. A. CARTMELL.

Crowley, Texas, June 24, 1889.

[I am sure you have too high an opinion of your humble servant. If you lived near by me, and could see me day by day, very likely your ideal friend would tumble to pieces, and you would find he was about after the fashion of mankind in general, after all. It is Christ's spirit, and that alone, that can lift us above earth and things earthly.]

HOW TO FIX TOMATO-PLANTS DURING A SNOW-STORM.

The 13 Ignotums arrived in splendid condition. They are extra good strong plants, and now all stand upright, having scarcely wilted. Considering both strength and weight, I think the wooden box in which they were packed is as good as can be made for mailing purposes, and that you will have but very little if any complaint of damaged plants packed as these were. They came Tuesday; and fearing a frost I delayed setting them that day. Next morning the thermometer stood at 32°, and I waited until after dinner, when it commenced to rain, with the wind in the east, and thermometer at 37°. Thinking that the wind would shift to the south, I set out the plants and went to work in the shop. At 3 p. m. my wife called and asked if I knew that it was snowing. Looking out, every thing was seen whitening with snow, which came as if it meant business. I ran and got 13 Simplicity covers, and put them over the Ignotums, in a hurry. The snow fell fast and thick until 7 p. m., when it changed to rain, with the thermometer at 32°, at which point it had been four times before within a week.

JAS. H. ANDREWS.
 Almont, Mich., June 3, 1889.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION.
 See advertisement in another column.

DADANT'S FOUNDATION SECTION PRESS.

PRICE \$2.00.



For putting together one-piece sections. Every section square, and a smart boy or girl can fold 100 in six minutes. Try one and you will never regret it. Send to your supply dealer or to 5-16db

WAKEMAN & CROCKER, Lockport, N. Y.

In responding to this advertisement mention GLEANINGS.

UNTESTED Italian queens, 75 cts. each.
M. ISBELL, Norwich, Chenango Co., N. Y.

STRAWBERRY PLANTS

By mail at 75 cts. per 100. Varieties, Jessie, Jumbo, Captain Jack, and Crescent Seedling.

Address **JACOB GUISINGER, Ada, O.**

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.

JAS. F. WOOD, NORTH PRESCOTT, MASS.,

Will now ship by return mail, his warranted queens to any address, for 75 cts. each, or \$8.00 per dozen. Single queen to Canada, 85 cts. Being isolated from all black bees I am able to warrant every queen purely mated, and safe arrival guaranteed. Every queen is of good shape, and all have filled several combs with eggs before being shipped. I will replace every queen that hatches a black bee with a select tested queen, worth \$2.00.

If you want the best queens promptly, send me your orders. I am bound to suit you. Address as above. 13tfdb

FOX-HOUND PUPPIES FOR SALE.—First-class stock. Address **C. A. WOOD,** 13tfdb Tarrytown, Westchester Co., N. Y.

LITHOGRAPH LABELS

In 12 Colors, at \$2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2½x2½. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; \$1.20 for 500; \$2.00 for 1000. **A. I. ROOT, Medina, O.**

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio; Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

COLONIES Italian bees at \$5; tested Italian queens at \$1; untested (young laying) Italian queens at 60c. Address **OTTO KLEINOW,** 15-16d 150 Military Avenue, Detroit, Mich.

PURE ITALIAN QUEENS.

50 tested queens now ready at \$1.00 each; 100 untested queens, every 3 days, at 70c each; 3 for \$2.00. A few selected breeding queens at \$2.00 each. All bred from imported and best selected home-bred queens. Safe arrival by mail guaranteed.

D. G. EDWINSON,

15tfdb **Adrian, Lenawee Co., Mich.**

In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODELL & WOODWORTH MFG. CO., 3tfdb **Rock Falls, Illinois.**

In responding to this advertisement mention GLEANINGS.

A STEP FORWARD TOWARDS SUCCESS!

After carefully studying the demand of consumers and dealers, and selecting of the many styles of packages for comb honey the very best and the most attractive, we have now prepared an improved paper carton combined with a comb-protector. Honey, put up in these packages, will be bought in preference to all others at highest market price. Our patent comb-protector will prevent leakage and soiling of sections. Comb honey can be easily and quickly put up in our cartons. These advantages and the small cost of our cartons and comb-protector will save labor, time, money, and honey. Strohmeyer's patent comb-protectors require ¾ inch of the inside height of crates. Price list and sample carton sent free on application.

F. G. STROHMEYER & CO.,

WHOLESALE HONEY MERCHANTS,

122 WATER STREET, NEW YORK.

No. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50 | Knife
No. 4, 1.25; No. 5, 1.00; No. 6, 65 | \$1.15

On receipt of the above price



SMOKERS and KNIVES
will be sent postpaid. Descriptive circulars will be sent on receipt of request card.

Bingham & Hetherington Smokers and Knives are staple tools, and have been used ten years without complaint, and are the only stovewood burning clear smoke bee-smokers; no going out, no vexation. Address

BINGHAM & HETHERINGTON, Abronia, Mich.

☞ In responding to this advertisement mention GLEANINGS.

WANTED! TO REDUCE STOCK!

For the next 30 days we will sell untested Italian queens, at 55 cts. each; 6 for \$3.00; 12 for \$5.75. Tested, \$1.00 each. Bees for sale cheap. 14-15d

R. B. LEAHY & CO., Higginsville, Mo.

☞ In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

TIN HUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 14fdh

ITALIAN BEES AND QUEENS. Tested queens, \$1.50. Untested, 75c. Bees, per lb., 85 cts. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list. MISS A. M. TAYLOR,
9 10tdb Box 77, Mulberry Grove, Bond Co., Ill.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE CHEAP!

75 COLONIES OF BEES,

Mostly Italians, in Root's Simplicity and chaff hives, \$4 per colony, hive included. Special prices for the entire lot upon application. Combs built on wired frames of foundation. I have other business, and the entire lot must be sold.

15-16d

B. T. BLEASDALE,
983 Woodland Ave., Cleveland, O.

☞ In responding to this advertisement mention GLEANINGS.



LEPAGE'S LIQUID GLUE.

Few words of praise are necessary for this excellent article, so widely known and advertised. It is one of the best of liquid glues. Always ready for use. Mends everything. We have 4 different-sized packages.

Glass bottle like the adjoining cut for 10 cts.; 75 cts. for 10; \$7.00 per 100. Half-gill tin cans with screw cap, and brush fastened to inside of cap, price 15 cts. each; \$1.10 for 10; \$10.50 per 100. This latter can be sent by mail for 10c. extra for postage and packing.

Gill tin can with brush, 20 cts.; 10 for \$1.50; 100 for \$14.00; ½-pint tin cans, no brush, 25 cts.; \$2.20 for 10; \$21.00 per 100.

LePage's MUCILAGE, in large bottles, with a nice enamel-handle brush, at 10 cts. each; 75 cts. for 10; \$7.00 per 100. This is the best mucilage made, and will do nicely in many cases for glue, although it is pretty thin to be used as glue.

A. I. ROOT, Medina, O.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads. intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 3 L. frame nucleus, with yellow Italian queen, in one-story Simplicity hives, worth \$2.00, for white paint, or offers.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange pure Italian queens for extracted honey. Please correspond with description of honey and price, f. o. b., cars at your station.
WM. W. CARY, Coleraine, Mass.
15tdb

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
OTTO KLEINOW,
4tdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange 80 acres of land in the basswood belt of Wis. A splendid location for bees, for full colonies of bees, and supplies. For information, address
B. J. THOMPSON,
14-15d Waverly, Pierce Co., Wis.

WANTED.—To exchange Planet Jr. garden drill, hoe, and cultivator, and Bible Companion, 706 pages, half morocco binding, for bees, combs, chaff or Simplicity hives, etc. Address
ALBERT MAKER, Urbana, Champ. Co., Ill.

WANTED.—To exchange bees for extracted honey.
J. F. MICHAEL, German, Darke Co., O.
15-16-17d

WANTED.—To exchange fine Damascus double-barrel b. l. gun, for 3 or 4 h.-power engine. Also Model press and type, for power fodder-cutter.
O. BRUMFIELD, Brumfield, Ky.
15-16d

WANTED.—To exchange 48-inch Otto special bicycle, used only 3 or 4 times, cost \$50, for a Barnes combined saw. Must be in first-class shape, as I guarantee bicycle.
W. H. WINSOTT, Sturgeon, Mo.

WANTED.—To exchange a 400-acre stock farm, for Western property, 200 in grass, 65 in timber; two-story dwelling, large barn, etc.; other out-buildings, never-failing springs; one mile to depot, and right in the blue-thistle belt, which is one of the best honey-plants in the world.
L. GLOVER, Darkesville, Berk. Co., W. Va.

WANTED.—To exchange 3 Novice style extractors (for L. frame) valued at \$7 each; ten 3-frame nuclei with queen, valued at \$2.50; twenty tested queens, valued at \$1; fifty untested queens at 60 cts. each; one medium-size iron safe, for a printing-press, or something useful.
14-16db S. S. LAWING, Henderson, Webster Co., Mo.

Black and Hybrid Queens For Sale.

Eight mismated queens at 30 cts. each; 12 hybrids, 20c each; 6 brown, at 20c each; all reared by natural swarming.
F. C. MORROW, Wallaceburg, Ark.

I have a lot of good hybrid and black queens for sale at 20 and 25c each. Send quick if you want them.
L. H. ROBEY, Worthington, Mar'n Co., W. Va.

Six hybrid queens for sale 8t 25c each.

LOUIS WERNER, Edwardsville, Mad. Co., Ill.

I have 12 or 15 hybrid queens that I will ship by return mail for 35c each. Safe arrival guaranteed.
C. C. KIRKMAN, Redalia, Pitt. Co., N. C.

A few hybrid queens for sale at 25c each by return mail.
FRED LEININGER, Douglas, Put. Co., O.

HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—*Honey.*—New comb honey is coming in quite freely. We don't look for a very active market before September. We quote white 1-lb. comb, 16c. Very little extracted on the market. We quote white clover or basswood, in kegs or barrels, 70¢ 7½¢; amber, in barrels, 6c. *Beeswax*, none in market. **CLEMONS, CLOON & Co.,**
Kansas City, Mo.
July 22.

NEW YORK.—*Honey.*—Our market is unchanged, although somewhat higher prices are asked for new extracted. There is some demand for new comb honey, but we have no stock yet. *Beeswax*, 26c.
July 22. **F. H. STROHMAYER & Co.,**
New York.

ST. LOUIS.—*Honey.*—We quote white-clover honey, comb, 1-lb. sections, 12¢ 13c. Extracted, clover, 5¢ 7c, new stock. We have reports from several of our shippers, and they say the dry weather of April caused not over 50 to 60 per cent of white clover to be gathered. But, with dry weather, prospect of full crop from fall flowers.
W. B. WESTCOTT & Co.,
St. Louis, Mo.
July 27.

CINCINNATI.—*Honey.*—Nothing new since our last report. We may note the arrivals of quite a number of small lots of new honey, with quite plentiful offerings. Demand is slow. Extracted brings 5¢ 8 cts. on arrival. Comb, 12¢ 15c in a jobbing way. *Beeswax.*—There is a good demand at 20¢ 22 on arrival for good to choice yellow.
July 22. **CHAS. F. MUTH,**
Cincinnati, Ohio.

ALBANY.—*Honey.*—Market not opened yet. Some talk of too much wet weather for crop, but I think the early sale after market opens will be the best. Free consumption does not begin until October. Consignments solicited.
July 24. **H. R. WRIGHT,**
Albany, N. Y.

NEW YORK.—*Honey.*—Our market remains quite active for extracted honey. Orange blossom, fine quality, sells readily at from 7¢ 7½¢. Off quality of Southern finds quick sale at from 60 to 70c per gallon. No new California honey on this market. Extracted would bring from 7½¢ 8c, while it is too early to stipulate on prices on new comb. *Beeswax* is dull, and prices declining on account of limited demand. Good yellow sells at from 25¢ 25½c.
July 22. **HILDRETH BROS. & SEGELKEN,**
New York.

BOSTON.—*Honey.*—No change in the honey situation. We are expecting some new this week. At present we are without a single pound of comb honey, but we are receiving some very fine extracted from C. M. Lincoln, of Rupert, Vt., and it will sell readily at from 8¢ 9c. *Beeswax*, 24¢ 25.
July 22. **BLAKE & RIPLEY,**
Boston, Mass.

ST. LOUIS.—*Honey.*—No market for comb honey. Extracted, quiet at 6¼¢ 6½¢ for bright; 5¢ 5½¢ for dark.
July 22. **D. G. TUTT GRO. Co.,**
St. Louis, Mo.

DETROIT.—*Honey.*—No new honey in the market, and old all sold. *Beeswax*, 24¢ 25. **M. H. HUNT,**
Bell Branch, Mich., July 25.

COLUMBUS.—*Honey.*—Honey is coming in very slowly; selling at 16¢ 17c for nice 4¼x4¼ sections.
July 22. **EARLE CLICKINGER,**
Columbus, Ohio.

FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections and 12-lb. cases, at 16 c (for 100 lbs. or more). Also 60-lb. screw-cap cans of extracted clover honey, at \$5 per can. Safe arrival guaranteed by freight.

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

FOR SALE.—10,000 lbs. of choice white-clover honey in first-class one-pound sections, 24 and 48 lb. cases. This is the finest honey I have ever raised. If you desire to purchase, state quantity and I will quote bottom prices. **EZRA BAER, Dixon, Ill.**

WANTED.—100 to 200 lbs. extracted honey.

DR. G. H. COREY, Bristolville, Ohio.

PRICES REDUCED.

Untested queens, 65 cts.; 10 for \$6 00. Select tested, \$1.50; ten 2-cent stamps taken where postal notes can not be had. Can send by return mail. Money orders payable at Nicholasville.

J. T. WILSON, Little Hickman, Ky.

☞ In responding to this advertisement mention GLEANINGS.

THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free.

W. Z. HUTCHINSON, Flint, Mich.

Please mention GLEANINGS.

1116d.

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.
See advertisement in another column.

NOTICE. Sections, One - Piece,

4¼x4¼x2, open four sides. We have about 200,000 nice ones in stock at \$3.00 per 1000.

G. B. LEWIS & CO., Watertown, Wis.

☞ In responding to this advertisement mention GLEANINGS.

DR. TINKER'S QUEEN-REARING CHAMBER

The only practicable invention for rearing and securing the mating of a number of queens, and getting them all laying at once in full colonies of bees. Patented July 16, 1889. For particulars address with stamp, **DR. G. L. TINKER,**
15-16d **NEW PHILADELPHIA, O.**

☞ In responding to this advertisement mention GLEANINGS.

WINTER ONIONS.

For description see GLEANINGS, Sept. 1, 1888. Price of sets, 10c a pint, \$1 a peck, \$3.50 a bushel; by mail, 8c per quart extra.

EDWARD B. BEEBEE, Oneida, N. Y.

☞ In responding to this advertisement mention GLEANINGS.

Carniolan Queens.

Importing and breeding this race exclusively since 1884; the demand for them has more than doubled each season. Send postal for circular, or \$1 for choice untested queen; \$5 per half-dozen; \$5 for Benton's best grade imported queen. 1116db

S. W. MORRISON, Oxford, Chester Co., Pa.

☞ In responding to this advertisement mention GLEANINGS.

Crawford's Folding Paper Boxes

For Inclosing Section Honey.

THE BEST BOX FOR THE LEAST MONEY!
\$5.00 Per 1000

and less, according to quantity. Send for sample and price list. **A. C. CRAWFORD, S. WEYMOUTH, MASS.**

☞ In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, \$1.25 each; untested, June to Oct., 75 cts.; 3 for \$2.00. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free. 1116db **JNO. NEBEL & SON, High Hill, Mo.**



Eaton's Improved SECTION CASE.
BEE AND QUEENS. Send for free catalog Address
FRANK A. EATON,
5-161b **Bluffton, Ohio.**

☞ In responding to this advertisement mention GLEANINGS.



Vol. XVII.

AUG. 1, 1889.

No. 15.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canadas. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES NO. XII.

UNLOADING AND FREEING BEES.

UPON hauling the first load of bees to an out-apiary, no special care need be taken till the load is taken off, for no bees are flying. After the first load, however, the case is different. Unless it happens to be so early or late in the day, or so cool that no bees are flying, great care must be taken. Use judgment as to how close you dare drive to the apiary, unless, indeed, there is no chance to approach near enough for the bees to trouble your team. I once kept bees in an out-apiary where there was no chance to get in the inclosure where the bees were, so I used a wheelbarrow to wheel them from the wagon to the apiary. But ordinarily you can drive nearer than it would be wise to have a team stand. Before you drive close enough to have any anxiety, get down from your wagon, put up your lines and have every thing in readiness to unhitch in a twinkling when you stop. If you have a single horse, unfasten the hold-back straps so that nothing shall be left to do but to unhitch the traces. Then lead your horse to the place where you will unload, unhitch as rapidly as possible, take your horse to a safe distance, and tie him; then go back and unload. Make some calculation to put the first loads in such part of the apiary that they shall interfere least with you when hauling succeeding loads; that is, in general put the first load in the furthest part of the apiary. I am not sure what is the best way to let the bees out of the hive after putting them on the stand; but I wouldn't let any of them out till I had finished unloading. Sometimes I have let them out without smoke, by moving very softly; but on doing so I am quite apt to take a short foot-race immediately after the bees issue from the hive. One might think that, after being pounded over the road so

long, bees would be good natured; but for some reason they are apt to be cross; and when a lot of cross bees rush out of a hive whose location they have never marked, I am doubtful about their finding their way back to the right hive, and a little skeptical about their being kindly received in any other hive. A few whiffs of smoke before unstopping the entrance makes matters pleasant, and I don't know whether that is better, or to dash cold water into the entrance.

I suspect it is better to let bees alone as much as possible the day they are placed in a new apiary; and I make a practice, pretty generally, when I take a load to an out-apiary to-day, to overhaul those that I hauled yesterday, after opening those I brought to-day.

BEST TIME TO TAKE BEES TO AN OUT-APIARY.

In the spring, pasturage is usually scarce; and if you have enough bees so that you need to take them from home for pasturage, they are likely to need the extra pasturage in the spring as much as any time, so that you will do well to commence hauling your bees just as soon as you can in the spring. Even if there is but little to work on in the spring, that little is quite important to encourage brood-rearing; and if you have 150 colonies, and take 75 of them away, the remaining 75 will have just twice the pasturage they had before, be that little or much. Besides, as friend Root suggests, the outside pasturage may be better. Bad roads may delay matters, for in some localities there are times in the spring when the roads are almost impassible. I would wait some little time for good roads.

I have sometimes kept bees home till well on in May; in fact, till one of the colonies had swarmed, as I was feeding daily in the open air, and I thought this would be of more advantage to the bees than the little they would gather in the fields at the out-

apiary. I don't think so now. I want them away as early as possible.

C. C. MILLER.

Marengo, Ill.

BEE-KEEPERS' CONVENTIONS, ETC.

OUR GOOD FRIEND DR. MASON GIVES US SOME GLIMPSES AND HINTS IN REGARD TO THEM.

FRIEND ROOT:—I wish I had the descriptive power of some of your correspondents, so that I could tell about my observations, made when on a Ramble, and of the amateur experts I see at such times, in an entertaining way. At any rate it may not be uninteresting to learn that, in this locality, or within the bounds of our Tri-County Agricultural Society, comprising the counties of Lenawee and Monroe, Mich., and Lucas, Ohio, the bee-keepers are awake to the importance of improving every opportunity to educate the people in regard to our important and growing industry.

A year ago last winter the society held a three-days' meeting at Monroe, Mich. It was just "chock full" of enthusiasm, and bee-keepers did their full share. It was so arranged as to have our specialty discussed in the evening, when there would be a full attendance of people from the city, whom it is quite desirable to disabuse of their false belief in regard to the adulteration of our product, and correct the false impressions made by "Wiley" lies and newspaper squibs—the production of the fertile imaginations of reporters.

The next week after the above-mentioned meeting, a farmers' institute, under the auspices of the Ohio State Board of Agriculture, was held in this county, ten miles from Toledo, at which our friend T. B. Terry was one of the lecturers, and our specialty was again brought to the notice of the farmers and others by the reading of a paper by myself, and the subject received its share of attention. And again at a like institute held in another part of the county on the last day of last year and the first day of this, the subject was again presented by an essay that gave something of the natural history of bees and the benefit they are to the farmer and to the horticulturist.

Last winter at Adrian, Mich., was held the anniversary of the Lenawee County Horticultural Society, and one of the principal addresses, through the efforts of one of your patrons, Mr. D. G. Edmiston, of that place, was on the relation of bee culture to horticulture. It was well received. Again in January last was held at Adrian the meeting of the Lenawee County and the Tri-County Agricultural Societies; and on the programme for one of the evening sessions, half of the time was given to a paper on bee-keeping, etc., by H. D. Cutting, of Clinton, Mich., and to one by your humble servant. The subjects of both papers were discussed by such bee-keepers as D. G. Edmiston, Mr. Allis, A. M. Gander, and others; and the discussion showed that a lively interest was taken in the subject. I never was at a gathering of any kind where so many sample copies of bee-journals were asked for by interested parties.

Mr. Newman had kindly sent some copies of the *American Bee Journal* for distribution, and I had some extra numbers of *GLEANINGS* to distribute also, and they were given to interested parties, and I doubt not you will hear from some of them. I had some copies of "Dot Happy Bee-Man" song

with me, and at the close of the discussion of the bee essays the glee-club sang it, to the evident satisfaction of the hundreds present.

At the close of the institute, at the solicitation of our friend H. D. Cutting, we (that's my better half and I) went home with him, 22 miles by rail, and had a good three-days' visit with him and his family.

Of course, I had to take a good peep at his bees. Till the last two or three winters his bees have been wintered outdoors, packed on their summer stands, but he is now a thorough convert to the benefits of cellar wintering. His cellar is under his house, and used as a family cellar for vegetables, etc., and is 16x24, and 7 feet high. He has made a kind of rack along one side and end, so as to hold three tiers of hives, which are set with their entrances toward and within a few inches of the wall, each one being easily removable without disturbing any others. The frames are covered with enamel cloth, and the bottom-board is left on. Some of them were placed in winter quarters Oct. 20, and the last on Nov. 20; and I am safe in saying that there were not two quarts of dead bees on the cellar bottom, from about 40 colonies, and none had been taken up. A small window at one end admits light at all times, sufficient so that no artificial light is needed to see to get things from the cellar, and but little light reaches the bees. He prefers a temperature of from 38° to 40°. If with the temperature of my cellar, 50°, I were to admit light, I should have to carry out mostly dead bees in the spring.

On the evening of the second day of the institute I had the pleasure of going home with and being entertained by Mr. E. W. Ellis, president of the Adrian Scientific Society. He lives five miles in the country, and, metaphorically, is full of bugs, beetles, reptiles, etc. Being rather timid, and having no especial liking for such animals, you can perhaps imagine my feelings on being ushered into a room about twelve feet square, more or less, "zhust zhammed crammed full of dose pets vot vorks all der day und nefer schleep nights, more'n ten thousand hundred, 1 bets." But then I soon found they were all dead. Mr. Allis is an enthusiastic entomologist, and he has a large library of scientific books, and seemed to know all that was in them. Of course, he keeps a few colonies of bees, and tries all sorts of experiments with them.

We were entertained at Adrian by Mr. Edmiston and family; and of course he keeps bees, or how else could I possibly have stayed over night with him? His bees are wintered on their summer stands, in chaff, and other hives of that character; and being a small-fruit grower and nurseryman he does much toward properly educating the people of his locality in regard to bees and their work and production.

During the last two winters I have attended five of these institutes, held in the three above-named counties, and made special preparation to present our branch of agricultural or horticultural interest, bee culture, etc., in the most interesting and attractive form that it was possible for me to do. If any other bee-keepers were present, they have willingly "lent a helping hand." In no case has an effort been made to induce any to engage in bee-keeping as a business, but to give, in as entertaining a way as possible, a brief natural history of bees; tell where honey comes from, and how the bees gather, store, and ripen it; how extracted honey is secured, and, if possible, illustrate; tell how

and in what way bees are a benefit in fertilizing and cross-fertilizing fruit and other blossoms. Also tell about the reported injuries done to fruits, grapes, etc., by bees, and how they have been accused of "eating young ducks," etc., and correct these false impressions. It is the bee-keepers' own fault if our business is not properly brought before the public at agricultural, horticultural, scientific, and other gatherings. To be sure, it is not an easy matter for a large majority, perhaps, of bee-keepers to prepare entertaining articles on our specialty; but "there is nothing like getting used to it." If one is not accustomed to it, and does not feel capable of preparing an entire article, just let such a one get, if he has it not already, a work entitled "Bees and Honey," by Thos. G. Newman, and the first fourteen pages will make an interesting introduction. It has just such information as is interesting to the general public, and written in a very interesting way. When the next opportunity presents, make selections from Prof. Cook's Manual of the Apiary, the A B C of Bee Culture, either or both, always giving proper credit, of course, and you will be surprised at the amount of interesting and valuable information that can be thus furnished to willing listeners. And now that the new edition of Langstroth on the Honey-Bee, just revised by Charles Dadant, is to be had, there seems to be no end to interesting matter. New ideas are put forth, and the old ones are put in new dress, so that one is almost "lost in wonder, love, and praise."

Then the different bee-journals are constantly teeming with things new and old, so that, if one had nothing else to enjoy or do he might almost revel in an elysium of bee-lore. We bee-keepers should be part and parcel of all agricultural and horticultural gatherings, whether for discussion or fun and frolic, and also of many scientific and social gatherings and should "let our light shine." In order to have the proper amount of time allotted to us at these gatherings we must be on hand and have a hand in making up programmes, and see that the right ones are put in to fill the bill.

A. B. MASON.

Auburndale, Ohio, Mar. 18, 1889.

Friend Mason, I can readily imagine how all these conventions succeeded, had a good attendance, and that fun and frolic, as well as education and information, were the order of the day, providing *you* were present. I have attended some conventions where they could not get hold of a Dr. Mason, a Dr. Miller, nor a Prof. Cook, and it was hard work to keep things lively, and to keep up an interest. We certainly should be part and parcel of all agricultural and horticultural conventions, and we ought to let our light shine. If we do not it is very apt to burn dim and go out. May God help us along the line which you have mapped out.

COMB-HONEY SLANDERS.

THE CATCLAW AND WAHIA, OF TEXAS, ETC.

MR. ROOT:—I inclose you a copy of the *Brackett News*, our local paper. You will notice an article entitled, "A Professor Mistaken." As GLEANINGS reaches only those who are fully aware that manufactured comb honey is only a myth, we educate the public in this section by writing occasionally to our local papers. Our greatest opposition here is not from

the "manufactured comb-honey" people, but from the numerous old fogies who keep a few box hives and sell a pound of black comb containing honey from various sources, good and bad, pollen, and perhaps a few bees, all for 10 cents.

You will not, I hope, put us down as frauds for claiming on our letterheads that the catclaw honey is equal to clover honey. You perhaps have not tasted catclaw honey. I have tasted clover honey, and can judge. We hope that, in a few years, catclaw honey will be as well known in the North as the clover is in the South. At present, bee-keeping in this section is only in its infancy, and we have not yet any Hetherington, Dadant, Doolittle, or Heddon, although we may have soon.

Our principal honey crop is in the spring. Bees fly on and off all through the winter. They work on mistletoe in December and January; aiguita in February; mountain laurel in March. This last is very valuable, as it comes at a time when the queens begin to lay. From the middle of March to the middle of April we have various flowers—prairie flowers, pssymon, hackberry, grape, daisy, etc., which stimulate brood-rearing, but not enough to show in the hives. Swarming commences about March 20th and lasts until April 20. Of course, it varies a little. Wahia, a short bush with feathery leaves (like acacia), has round white fluffy balls. This opens April 20, and yields half a crop of flowers, generally for three weeks. Catclaw, a bushy tree, has a similar flower, but long. It opens up about May 6, and to that we look for the other half. The honey from both these sources is white, and has a delicate flavor, but it granulates quickly.

From the end of May to October we have a little honey from corn (which we never extract); and after a heavy rain we have honey from white brush and sage; but it is in such a small quantity that we can seldom keep it separate. It is much superior to catclaw. In October we have sunflowers and broomweed. This honey is amber-colored, but has a nice taste, not too strong.

This year has proven to us very conclusively that it is an advantage to have out-apiaries.

Wahia and catclaw are plants for a dry climate, and we had so much rain this winter around our apiaries that the plants had very few flowers on them; whereas, outside a circle of about ten miles in diameter, of which we were in the center, the wahia and catclaw yielded abundantly. The bees from the apiary had to fly four miles and made only half a crop; whereas, if we had had an apiary at Elm Creek they would have made a full crop.

The rain falls in spots, and next year the conditions may be reversed, or perhaps the same; but in a country where one square mile will yield honey in abundance, and the next square mile none, I think it is well to have out-apiaries. When the year is good we can put from 160 to 200 colonies in one yard, without overcrowding.

We obtained a select tested queen from Paul Viallon, at the end of April, and we have now over fifty young queens laying that were raised from her, and they are keeping three Langstroth frames full of brood, which is good for this time of the year, when there is no honey.

We can only reiterate the hope expressed by so many other bee-keepers, that next time you go on a trip, you will manage to pay us a visit.

ST. LONGLEY BUCHANAN.

Brackett, Tex., June 20, 1889.

could be by sugar feeding, when no stores were to be had. If one commences in the fore part of June with any sort of a nucleus having a laying queen it can be built up strong very speedily. We presume you did not get any brood from other colonies; but we infer that you took queens or queen-cells. You also purchased 18 or 20 queens; but as all the nuclei died to which these were given, it is perhaps fair to make no account of it. The fact that you did winter through 45, all made from this original colony June 7, is astonishing. I once increased 11 colonies to over 50, and wintered them all; and I did it much on the plan you have mentioned. I suppose you did not keep any account of your time. If you could tell us just how many days' work it took to do this we could tell better whether it is a paying business. My impression is, that it will pay handsomely whenever bees can be sold, say for \$5.00 a colony. We used to have a good deal of sport in hunting wild bees, and bringing them home; but after I learned how to make colonies by increase, in the way you have outlined, I decided that I could build up colonies a good deal cheaper than to take them out of trees in the woods.

QUEEN - EXCLUDING HONEY-BOARDS.

BEE-JOURNALS, AND ARE THEY FULLY OF PUFFING UP THINGS TOO MUCH?

ON page 441 of GLEANINGS I notice an article from the pen of my neighbor, J. F. McIntyre. Said article is headed, "A Big Testimonial in Favor of Perforated Zinc." Well, that big testimonial brought back to my mind what a friend of mine said to me on the Ojai about six years ago, when I asked him why he did not take a bee-paper, he being quite an extensive bee-keeper. He said he used to take several Eastern bee-papers, but he got tired of reading fine-spun articles and big reports from men that kept five or six hives of bees to experiment with. Well, I think that was a pretty big hurrah for one honey-board. If it had been 50 or 100, then I should have said hurrah too. I have used the zinc honey-boards again this season that we used last (see page 358), with a little better result than last season. This year four out of eight let the queens go through about as well or as easily as the workers. One of them we saw the queen go down through with perfect ease (this queen was a good-sized Italian); but, as you say, those zincs may have been made on your old machine that was somewhat worn. One of them was about half full of drones, hung by the neck, their bodies dangling down from the under side of the zinc. The other four worked entirely satisfactorily; and if I can get a queen-excluder that is a queen-excluder, I will use over one thousand of them next season.

I was at friend McIntyre's a few weeks ago, and saw, while there, one of Dr. Tinker's honey-boards. It appeared to me that the bees can get through it much easier than they can through the all-zinc ones, as the strips of zinc have two rows of holes in them; thus each row is close to the wood slats; and I notice the bees can pull themselves up through the perforations by catching hold of the wood slats. I gave Mr. Intyre one of my zinc

honey-boards. He will probably report his success with it. McIntyre and myself are the only bee-keepers in this county who have ever used a honey-board of any kind, I think. He has used probably not more than one or two. I have used over 200 Heddon slat honey-boards for the last three or four years, but I think I will make them all queen-excluding next season, for we have several thousand drone combs that we want to keep the queens out of. Can you tell me where I can get a machine to make the strips of zinc, with two rows of perforations in them? There are many bee-keepers here who count their hives by the hundred, who don't know what a queen-excluder is.

The honey crop in California is very short this year. I think it is less than a quarter of a crop. I have a list, nearly complete, of all the bee-keepers in the county, of the number of colonies each one owns, and the number of tons of honey produced by each. I will send you a report when complete, if you wish it.

DATE. May.	Weight or Gain in pounds.	DATE. May.	Gain in pounds.	DATE. June.	Gain.
10	2	29	2½	16	0
11	1½	30	2½	17	½
12	1½	31	1½	18	½
13	1½	June.		19	1½
14	1½	1	2½	20	0
15	½ lost.	2	3	21	1
16	0	3	3	22	1
17	3½	4	1½	23	¾
18	2½	5	2	24	1½
19	3½	6	1½	25	1½
20	2½	7	1½	26	1½
21	5	8	1½	27	¾
22	4½	9	2	28	2½
23	3	10	3	29	4
24	4	11	2	30	½
25	½	12	1		
26	3½	13	1		
27	3	14	1½		
28	3	15	1½		

You can see by the record which I send you, of a hive that I had on scales this season, that the honey came in very slowly. It does not look very big for California, I assure you; but it will partly explain to you how myself and my four boys did all the work of extracting and taking care of over 1100 hives of bees. Myself and the three youngest boys extracted in 13 hours 2½ tons of honey, and we did not play much of the time either. Such rapid work is in a great measure due to the very convenient extracting-house that we have, a description of which I may give you in the future.

FOUL BROOD.

This is getting to be very scarce in this county. I commenced experimenting about the time that you were here last winter, with a very simple remedy for the cure of foul brood. I take two or three spoonfuls of sulphur, put it in an old fruit-can, and pour over it enough kerosene oil to make a thin paint of it. Apply it with a small paint-brush to the combs that have the diseased cells in them; brush them all over with the sulphur and oil. It will kill some of the healthy brood, but not all of it; also brush it over the frames and as much of the hive as you can without getting it on the bees. One or two applications have cured six or eight for me this season, or at least they are perfectly healthy now, and some of them were very bad.

Several combs were nearly half diseased. If the disease does not appear again in those same colonies by next spring, I will shout "Eureka!" Now, friend Root, don't say that you smell brown coffee or chilled brood, or something else worse.

L. E. MERCER,

San Buena Ventura, Cal., July 6, 1889.

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

HOW TO PREVENT THEIR PUBLICATION, AND HOW TO CORRECT THEIR BANEFUL INFLUENCE; SOMETHING FOR OUR SUBSCRIBERS TO DO.

IF there is any thing that the veracious scribes like to talk about in the press, and roll under their tongues as a precious morsel, and finally spit out upon the public, it is the subject of adulteration. They seem to have gone wild on the subject. They know people like to be told that they are being humbugged; and they know that the story of "Yankee ingenuity" will cause the gullible public to hold up their hands, "Did you ever!" and as long as there is a demand for it, so long the same old story will be rehearsed, unless there is a stop put to it. "Manufactured comb honey," "artificial combs deftly filled and capped over by means of appropriate machinery"—oh dear! how stale it sounds! If the reporters could only change their tune a little it would be gratifying; but "appropriate machinery" has to be stuck in every time. Well, within the last few weeks, or at least since the Philadelphia *Record* commenced republishing the comb-honey story, the whole press all over the land has been reiterating it in long and short squibs. Clipping after clipping has been sent in until we feel discouraged. We have published them, and refuted them publicly, and sent marked articles to the editors, calling upon them for retraction. We have written private letters, asking them in all fairness to be kind enough to make some amends. Nor has Bro. Newman of the *American Bee Journal* been less vigilant. We have about come to the conclusion that the bee-journals need assistance in helping to cry down the evil. Jones sees a false statement about the comb-honey business in one of the columns of his local paper. He cuts it out, marking the date and issue of the paper, and sends the same on to us, or to Bro. Newman, of the *American Bee Journal*. Well, so many clippings like this have come in that it would almost fill one issue to make any thing like an appropriate denial for each one. Quite recently some four or five correspondents, instead of sending the marked article to us for refutation, have themselves called upon the editor, showing the absurdity of the statement in a recent issue of his paper. In two or three instances they have written out a refutation themselves, and this refutation appears in the very next issue of the paper, so that the false impression is corrected right where the mischief is done, and not in the columns of a bee-paper whose readers know perfectly well the untruth. The following is a spicily written article from the pen of one of our subscribers, Mr. Julius Gerard, of Mariposa, Texas; and as it illustrates the point we are getting at, we reproduce it here entire:

A PROFESSOR MISTAKEN.

GLUCOSE AS ARTIFICIAL HONEY; A PRACTICAL BEE-KEEPER'S KNOWLEDGE OF THE FACTS.

Editor Brackett News:—I suppose whenever you want to get the real facts about any thing you refer to your *Encyclopaedia Britannica*; for instance, if you wish to know how far it is from Brackett to the sun, you refer to the *Encyclopaedia*; and whatever the given number of miles may be, you or any one else will accept it as a fact. I am sorry to say, however, that my confidence in the American *Encyclopaedia* has been lowered 100 per cent, because I see at least one instance in which hearsay is given out as true science.

Mr. Chas. Morris, of the Philadelphia Academy of Science, writes concerning glucose, in Vol. III. of American Supplement, page 537, in the left-hand column, 21st line from the top, as follows:

"Glucose is used chiefly in the manufacture of table syrups and confectionery, in the brewing of ale and beer, and to some extent as food for bees and in the making of artificial honey. No reliable statistics can be had as to the quantity used in brewing, since brewers seek to conceal the fact of its employment. When it is fed to the bees, the honey yielded by the bees is almost pure glucose. In artificial-honey making, the comb is made of paraffine, and filled with pure glucose by machinery. For whiteness and beauty it rivals the best white-clover honey, and it can be sold at less than half the price. Its one defect is, that it is not honey."

Now, sir, this falsehood is given by a professor of science, and published as a fact in the *Encyclopaedia Britannica*, a work to which thousands of people refer as authority.

If the author of the article on glucose will take the trouble to come out to the Mariposa apiary I will convince him that his education as a bee-keeper has been sadly neglected, and that what he wrote about artificial honey being made of glucose and then put into artificial comb by machinery, is false; and if he has taken no more pains in writing the other parts of his work than he did in this, I would not give a nickel for all the volumes of the *Encyclopaedia Britannica*.

Mr. A. I. Root, of Medina, Ohio, offers a reward of \$1000 to any one who will show or tell him where artificial comb honey is made; this offer was made because so many false reports have been cast abroad about honey. Mr. Root has not yet found anybody who claimed the reward.

If Professor Morris, the glucose gent, tells us that the distance to a certain star is just 400,000 and $\frac{1}{2}$ of a mile, I for one am willing to swallow it, even to a fraction of a mile. But when he wants to tell me or any other progressive bee-keeper any thing connected with our industry, he should be a little more careful, as we never go by hearsay, but by facts. That man is doing a hard-working class of men a great injury. I can assure you, dear sir, that there is no artificial comb honey made by machinery, and that there never was any made.

Mariposa Apiary.

JULIUS GERARD.

Another one of our subscribers, also secretary of the Ohio State Bee-keepers' Association, Miss Dema Bennett, of Bedford, O., who, after having read the usual yarn about manufactured comb honey "definitely filled by appropriate machinery," in a large Cleveland daily, called upon the city editor in person, proving to him the falsity and absurdity of the statement respecting manufactured comb honey, which appeared in a recent issue of his paper. After telling him that tons and tons of honey are produced honestly, she referred him to us. As a result of this visit he wrote us a letter asking for facts in regard to the honey business. We immediately sent him a card, offering a thousand dollars for a sample of manufactured comb honey, "definitely filled by means of appropriate machinery." We also wrote him a long letter, detailing the importance of the honey industry in the United States, telling him where he could find out just

how bees "make honey," by sending a reporter. We referred him to Dr. A. B. Mason, Auburndale, O., and to H. R. Boardman, of East Townsend, O., and we requested, as a special favor to bee-keepers, that he send a reporter to either one of these gentlemen, and report what they see in his own paper.

A personal letter, written to the editor who has damaged the bee-keeping industry by one of the falsehoods, or, better still, a personal visit itself, will secure the attention that a prompt denial from a bee-journal might fail to do. In the one case Mr. Gerard wrote an article to the Brackett *News*. In the other case a lady bee-keeper (and what editor would not give one of the opposite sex a fair hearing?) called upon the city editor and enlisted his interest so that he even wrote to A. I. Root for information. The point is, that the *refutation or denial should appear in the paper in which the falsehood has been published*; in other words, those in whose minds the false impression has been created should have a speedy denial. These large papers will rarely deign to publish any thing from a small paper, but they will take something first-handed, as a general thing, providing the right influences are brought to bear. Now, then, we suggest that, instead of sending so many of these clippings to us, *you sit down yourself* and write to the editor of the paper in whose columns the false statement appeared. We will furnish free all the \$1000 reward cards you can use, and other matter you may call for. The more bee-keepers who will do this, the more effect it will have. Be sure to write in a courteous and gentlemanly manner. Do not call them a "pack of fools" or a "set of liars;" but write in such a way that they will respect the writer. Of course, we shall not cease pecking away at the falsehood, as we have done in the past, but we solicit the most hearty co-operation of our subscribers. Do not forget that, when the item appears in your local paper, a *prompt denial from yourself*, especially if you are a person of influence, and one whose word even the editor himself has no reason to doubt, will have more effect upon the editor than a denial from a bee-paper perhaps several hundred miles away. Do not leave any local editor unvisited, who dares to slander our industry by publishing any thing about "artificial combs deftly filled and capped over by appropriate machinery."

DR. MILLER ON SWARMING AND ITS PREVENTION.

THE CAGED-QUEEN PLAN.

I AM glad to see the views of Hasty, Doolittle, and Stachelhausen on swarming. No other matter connected with bee-keeping, at present, possesses more interest for me. In raising comb honey, swarming is the one great drawback that upsets all plans; and if we know the conditions necessary to induce swarming it may help us toward prevention. Indeed, I care very little to know the cause or causes of swarming, only as it helps me to know how to prevent it. Sometimes I think I have prevention of swarming just in my grasp, and then like a "will o' the wisp," it's away

off. I don't like to tell how much I've done in different years to spoil my crop of honey by trying experiments to prevent swarming. The experience of this summer has muddled afresh some of the things that I thought I had pretty well settled, and leaves the whole matter an open question. Years ago I practiced with considerable success the plan then recommended by friend Doolittle for the management of swarms, which was, in brief, to cage the queen when a swarm issued; in five days, cut out all queen-cells, and in five days more destroy queen-cells again, and liberate the queen. This worked well, and I am not sure whether any plan can be adopted that will give better crops where white clover gives the only surplus. The great objection to it is, that it requires some one to be constantly on the watch to see the swarms issue. After trying various plans, and giving them up in despair, I came back last year to caging queens again. After following the Doolittle plan already mentioned, the colony thus treated never gave any trouble again about swarming that season. It seemed reasonable that the same plan might be used without waiting for the bees to swarm, so I caged the queen before the colony had swarmed, looking through the brood-combs and destroying all queen-cells, if any were already started.

The queen was placed in the cage, between two top-bars in the brood-nest, and the bees always feed her there. I think in no instance have I found a queen dead in the cage after being so placed. After remaining thus for ten days, all queen-cells were destroyed, if there were any, and the queen liberated. Sometimes no queen-cells were started during the caging of the queen, but generally several were found sealed at the end of the ten days, and these cells were of the best kind. You will see that this varied not such a great deal from the old Doolittle plan, and I expected the same results but with some fears, as I have been so often mistaken in what to expect from bees. This year I have had a good many cases in which the bees swarmed out after the queen was liberated, sometimes in two days after, and sometimes sooner, the queens not having made any start at laying. Indeed, the year has, I think, been an unusual one in the matter of swarming. Many colonies have swarmed out while the queen was caged in the hive, and there seemed to be one or more cases where the bees, I think, remained clustered on a bush with no queen. At the Bolden apiary a large swarm clustered on a low bush, remaining there two days and nights. I suspected that a clipped queen had traveled there with them, but I found nothing of the kind. If a young queen had been with them it hardly seems that they would have remained so long clustered, as the weather was fine. When I found them they had dwindled to a pint or more, and had deposited on the bush a mass of white wax of irregular form, sufficient to make a ball the size of a hickorynut or walnut. I cut off the bush and ran the bees into a hive in which I put a comb of honey and an empty comb—no brood. I looked over the combs carefully, confidently expecting to find a queen of some sort, but could find none. Two days later I found them busily storing honey, having started two queen-cells with pollen in them. I then gave them a sealed queen-cell. I incline to the opinion that a colony with a clipped queen had swarmed and settled, most of them having gone back, gradually, to the

hive, the queen having been lost. At present I am trying the plan of keeping the queen caged for some days after destroying cells the tenth day. You thus see I am still anxiously seeking to learn how to prevent, not increase, swarming.

HOW TO LOAD HIVES.

You think, Mr. Editor, I should load hives on a wagon with the frames running in the direction of the road, to prevent loosening frames when bumping down off bridges. So I should, if the road were largely made up of bridges, and it is possible I am wrong; but the bumps of that kind are very few, and the wagon box is constantly shaking from side to side in such a way that the swing would gradually loosen the frames, so I always load the hives with the frames at right angles to the direction of the road. Last spring I hauled nearly 200 to the out-apiaries; and although pretty heavy with honey, not a frame was loosened, and the same was true about hauling home the previous fall when they were very heavy with honey. C. C. MILLER.

Marengo, Ill.

Yes, friend Miller, we do not care so much about the *cause* as we do the *prevention* of swarming. If the cause will give us the clew to its prevention, well and good. We would much rather have good strong colonies—the stronger the better. It is true, new swarms have a peculiar vigor; but the parent colony loses sometimes four or five days in semi-loading in its preparation for a swarm—days that are of utmost importance so far as the production of honey is concerned. We have one good strong colony of imported stock that has not swarmed at all, nor even built a queen-cell. It has kept right on bringing in honey while the rest were getting ready for their picnic in the air. Now, if we can make these restless colonies behave like this one by caging the queen, what a bonanza we shall have!

LETTER FROM ITALY.

A GLIMPSE OF BEE-KEEPING AS IT IS IN THE NATIVE HOME OF OUR ITALIANS.

EDITOR GLEANINGS:—It is a nice thing to communicate to your brethren in bee-keeping your victories and the number of pounds harvested; but, American friends, what do you think of 1889 up to date? Somehow or other the pen does not seem to run so well. I'll do my best, however.

When upon the Alps to look over my bees I asked an old woman near my yard, 76 years of age, "Do you ever remember such a year as this one?" She answered me, "Yes, but once when I was yet a girl, when it rained for such a long time that corn was being sold for 18 cents a kilogram."

I wonder what honey will have to be sold for if this weather continues. In fact, but a few days excepted, this spring has been but a continual rain—just enough to prevent bees from going out. A warm temperature prevailed—just the thing wanted; fruit-trees were in full bloom, and the poor bees inside nearly starving. Stores were used up in a most wonderful way; but about the 20th to the 25th of May, brood-rearing came to a standstill, owing to shortage of stores, and scarcely any honey coming in. About the 15th of June this year my colonies had to be fed, and some at the Alp apiary

starved on account of rain, with plenty of honey in the fields. Out of the 102 colonies which I had this spring at the home apiary down in the valley, only about nine swarmed, owing to the bad weather prevailing during fruit-bloom. April 25th to the 20th of May I did not care to prevent swarming, wanting to increase the number of my colonies steadily. In the valley, however, the bee pasturage is very scarce; in fact, my only resource for the present, of any account, is chestnut. Notwithstanding the very beautiful hills, having at the back the lofty peaks of Italy's crown, my bees would nearly starve, or at least give but little increase, even in good years, were they not migrated in due time to fields more profitable to myself and enjoyable to my faithful workers. You see, I combine the Alpine holiday stay with the occupation on which I am relying for my "bread and butter." Like you, I am engaged in bee-keeping, not as a pastime, but as a regular business, in which pursuit Mr. Dadant was my principal master, without, however, having ever seen his face, and the one who decided my shaking hand to cut the rope which tied my frail bark to the land of hesitation; and GLEANINGS is the always long-looked-for fortnightly visitor; and, more than that, the regular companion on the lofty mountains and along the Alpine valleys while on apistic rounds. I have taken, besides, a partner in business whom I hope you all have already taken too, who promised me that, if I were faithful to him, "every thing I would undertake would prosper." I am trying hard to do so, dear friends.

Mr. Dadant's controversy in the *Apicoltore* of Milan, on the Berlepsch Italian small square frame versus the Langstroth-Quinby frame, still enlarged by Mr. D. himself, convinced me of the superiority of the shallow-frame hive, with large brood-chamber, with equally large surplus apartment; in fact, the little experience I have had with them has already more than convinced me of the importance of some conditions in preparing colonies for the harvest, especially in moving them from one field to another, which I have done for the last years, when moving my hives from the valley to the pasturage on the Alps; viz., migratory bee-keeping, which, when done with care, and under certain rules, has proven to me most profitable, about which I will report later on if you care for it.

But I should want the Rambler's pen, to draw out a sketch of the writer, the donkies, and the carriers of the "alveari" (hives), when, a few weeks ago, notwithstanding all the care taken, some of the yellow-jacket ladies got out and went for them. O Dr. Miller! come and help, please.

Suserna S. Giovanni,

F. MALAN.

Waldensian Valleys, Italy, July 7, 1889.

And so, friend M., it transpires that the great amount of rain through the spring and early summer extended not only throughout the United States, but even across the ocean to far-away Italy. We are glad to get this glimpse of bee culture from you; and we are more rejoiced than we can tell, to know that you have taken Christ Jesus our Savior as a partner in business. Truly "we be brethren." If it should ever be my good fortune to visit Italy, it will add much to the pleasure of the trip to think that I have real brethren over there—brethren through Christ Jesus our common Lord and Master.

O. M. BLANTON'S VISIT THROUGH ARKANSAS AND TEXAS.

HOW THE COW-BOYS GET THEIR HONEY.

FRIEND ROOT:—I promised you that, when I returned from San Antonio, Texas, I would write you of what I saw that would be interesting to bee-keepers. I stopped on my way at Hot Springs, Arkansas, the great resort for the afflicted of almost all chronic diseases. I found it quite a city, nestling in the mountains, with handsome buildings, and a population of 12,000. After a week's indulgence in the hot baths, with great benefit, I left for Dallas, Texas, as one of the largest and most prosperous cities in the State; thence I went to Fort Worth, and on my way I saw the magnificent fields of wheat, corn, oats, and other cereals, which would have made you feel as though you were in the Miami Valley, but for the few hundred acres of cotton on those large farms. The farmers were harvesting wheat, and the harvesters and binders were in active operation.

From the phenomenal city of Fort Worth, of 15 years' growth and a population of 45,000, I stopped over at the beautiful city of Austin, and inspected its capitol, one of the grandest and most complete pieces of architecture in North America; thence to San Antonio to meet my children and seven grandchildren who were pleading to go home to Greenville, Miss. I had but four days to visit among the bee-keepers, and had a poor opportunity to inform myself. The honey prospect was very good, on account of the seasonable rains.

I met Bro. Flournoy. He had abandoned his large apiary on account of the previous dry seasons and the ravages of foul brood. Some of the comb honey I inspected was very white and translucent, and made in beautiful one-pound sections, and the extracted was of excellent flavor, and light amber. I was told it was from the "cats-claw" (*uña de gato*) family of the mimosa, which blooms in April.

From my observation, the honeys of Texas are of a very strong flavor, owing to the great fragrance of the flowers, and from that cause you soon tire of it for a table luxury.

Some few of the honey-plants I will refer to:

1. The *aiguila* blooms in February; extremely fragrant, and yields much honey for early brood; flowers small, in clusters, and of orange color. The berries are similar in color and size to currants, and of acid flavor, used in making jelly and pies.

2. The mesquite also yields much honey; and a singular feature about it is, that it rarely blooms in a rainy season, but flows abundantly in a dry one. It belongs to the family of *Leguminæ*, the beans of which the birds of every kind, and also cattle, feed upon. The beans are ground, and made into a kind of tortilla by the Mexican Indians, for food, when other means of sustenance are scarce.

3. The *lechuguilla* (pronounced lai-chu-geel-ya). It is a fiber plant, common on both sides of the Rio Grande, and as far east as the Nueces. The Mexicans use it for making rope. The flower blooms at the top of a tall stem, and is remarkable for the great quantity of honey it yields. It is of the yucca family. A gentleman informed me that, in riding through it, he grasped the flower with his buckskin glove on, and his hand was moistened from its nectar.

The wild heliotrope, Mexican willow, and hun-

dreds of other plants too numerous to mention in this article, yield honey, and most of the flowers are so fragrant that, in riding through the chaparral, you are almost overcome by the odor.

Southwest Texas is a great country for the bee-keeper, especially Uvalde County, except when the season is very dry, when the honey crop is almost a failure. In the mountainous parts of the Pan Handle (Northwestern Texas) bees are very abundant, and they are found in the caves and clefts of the canyons; and as the cow-boys' story goes, the clefts are so filled with honey that large combs project from them, and all they have to do to secure a sufficiency of it is to take a Winchester rifle and a bucket, and shoot off the comb and adjourn to camp for a feast.

Here at Greenville the spring opened favorably for a good yield, but the excessive rains now are a great drawback. My apiaries were much neglected last winter, owing to my absence from home, and I lost at least 60 colonies, and am now reduced to about 400. I found time in the spring to put them in good order and melt up a great portion of old combs—some, I am satisfied, were 12 years old. By this means I enabled them to make new comb for the queen to deposit her eggs in. I have so far secured only 8000 lbs. of honey, as much new comb had to be constructed; and my absence from home, and so many affairs to attend to, caused my apiaries to suffer.

O. M. BLANTON.

Greenville, Miss., July 8, 1889.

NOTES FROM MY WORK-SHOP.

DOUBLE-DECKED CELLS.

I BELIEVE it was Dr. Miller who lately called attention to the fact that bees sometimes build an extra tier of cells over the surface of a comb of sealed honey, after which the central tier was never opened by the bees. My surplus combs hang from the ceiling of my honey-house. Twice, once last fall and again this spring when robbers were particularly searching and energetic, I opened the doors for several days, and gave the bees free access to these combs until they were satisfied there was no more honey in them. In spite of this I found several combs containing honey in a central tier of cells, which they had not removed.

DAMPENING SECTIONS.

All sections that have been allowed to get thoroughly dry will break largely in folding unless they are dampened before using, no matter what some manufacturers claim for their peculiar mode of manufacture. I formerly dampened them by piling them up in layers, wetting the back of each alternate layer with a brush or sponge. This was tedious, and often injured the appearance of the sections. I now use a much better and more expeditious way, as follows: Take the crate of sections as it comes from the factory, and set it on the floor, or, better, put two sticks under it to raise it slightly. Take an old quilt or blanket, something that will hold a great deal of water, and wet it, as much as it will hold without dripping. Fold this closely around the crate of sections. A dry cloth thrown over the wet one to prevent evaporation will be a help. Leave them over night or for several hours, and you will find them damp enough to fold without breakage. It does not take much

moisture to toughen the thin film of wood where the bend comes.

T SUPERS.

I am using quite a number of these this year, and so far I like them very well, after making some changes. I did not like to have the sections held so far apart by the T tins letting them get out of square, and leaving great chinks for the bees to fill up with propolis. So I took the tins to the vise and flattened the fold until it was no thicker than the two thicknesses of tin. Perhaps they are not quite as stiff that way, but they are stiff enough. Then I cut the sides $\frac{3}{8}$ of an inch shorter, and, nailing them so that the inside length was slightly less at the top than at the bottom, I had a case that keeps the sections close and true, and avoids a great deal of propolizing.

GETTING THE LAST SECTIONS INTO T SUPERS.

Several devices for this purpose have been described and illustrated, I believe. Nothing better can be made than a piece of heavy tin the width of the section, or less, and five or more inches long. Bend it at right angles, $4\frac{1}{2}$ inches from one end, and nail a small block close to the bend, on the outside, to handle it by. Two of these may be needed. Their use is evident.

UNFINISHED SECTIONS.

Well, Dr. Miller, you have done it. I have been wondering for a long time who would be the one to make that point against the claim that sections filled with comb built the year before are unprofitable to use. We all know that, in producing extracted honey, empty combs are a very profitable to use, and it really seems as though the same principle ought to hold good with combs in sections. In my experience, though, it does not. Within the past week I have taken finished sections of honey, built on fresh foundation, from all sides of sections, filled with nice, clean, dry comb, nearly half of which were still unsealed, both put on the hive at the same time. Why is this so? Do the bees object to the small size of the combs, or does it simply take longer for them to ripen the honey put into the cells of full depth? The latter seems to me the better explanation. Perhaps if we should give the bees all the sections of comb that they could fill with honey, and then give them their own time to seal it after it was thoroughly ripened, we should find they would store as much or more honey than in sections where they had to build their comb. I confess I never tried this in just this way. This would be managing them on the extracted-honey plan.

With comb honey we very properly try to remove the honey as soon as it is sealed, while extracted honey should be left on the hive as long as possible. To produce extracted honey profitably, too, a much larger hive is needed than for comb honey. If we should allow a colony storing honey in combs no more room than is usually given to a colony producing comb honey, and not extract the honey from any comb until it was perfectly sealed over, should we get any more of extracted honey than we should of comb? I rather think we should not get as much.

I have experimented with sections of comb in various ways this year. I have used a great many bait sections, just as Dr. Miller advises, and I am willing to take back a part of what I have said, and admit that these bait sections often serve a very good purpose; and as there need be only a few of

them, it does not matter very much if they are not first class. I know of no better way to convince any one that sections of old comb are seldom if ever finished so as to equal in appearance those built new, than to use just this one bait section in each case, all others being filled with fresh foundation. Let such cases be filled during a good flow of honey from white clover, and any one with eyes can see the great difference in appearance. I am trying another experiment which I wish the readers of GLEANINGS could see in its progress. I have a number of Heddon cases, new style. These have seven single-tier wide frames, held together by screws on one side of the case, which we will call the front. The three back frames in each of these cases are filled with sections containing foundation put in them last summer, but little or not at all worked. The middle frame contains sections filled with comb built last year—nice ones, no candied honey or any thing objectionable about them. The three nearest the front are filled with sections of fresh foundation. Very often, as I pass about the apiary I lift the covers of these hives and note the progress of work in the sections; and it is very comforting to me to see in how many cases the three front rows are in advance of all the rest, although the row of combs in the middle has the best place, and it deepens my desire to have just as few unfinished sections as possible in the fall.

Dayton, Ill., July 10, 1889.

J. A. GREEN.

Thanks, friend Green. If you will turn to page 306 of GLEANINGS for April 15 you will see a diagram which represents the "double-decked cells," as you call them. We should like to know, however, whether the combs containing these cells are of ordinary thickness. If so, it is a rather unusual phenomenon.—Your method of dampening sections is rather novel; but in our climate we are of the opinion that the damp blanket would have to be around the crate of sections more than over night. If left long enough it would surely do the business, and you have our thanks for the suggestion.—As to the matter of putting the last section in the T supers, although we fill a great many supers for hives set up, we use no special appliance for getting the last section in. It does sometimes cause a little trouble; but a little shucking of the crate will usually cause it to slip into its place. The point you speak of, of a space between the sections, formed by the T tins, is one of the objections against the T super, as ordinarily made. The one-piece sections have a tendency to assume a diamond shape. When two of these sections lean in opposite directions from each other, we have noticed sometimes a space of nearly a quarter of an inch. The space formed by a T tin is usually just wide enough to cause the bees to chink propolis in between the rows at the top. This can be obviated, however, by using an extra set of T tins; and this extra set will at the same time hold the sections perfectly square.—On the matter of unfinished sections, we do not suppose there will ever be an agreement among the mass of bee-keepers as to whether their use is profitable. Our experience rather coincides with Dr. Miller's. Quite a number of our colonies would not go up into sections, although they were strong, and their brood-nest was

crammed full of honey and brood. From all such we removed one of the sections of foundation and put in its place a section of partly drawn-out comb. In most cases it had the effect of starting the bees above at once. Honey was first stored in the bait section, and then the bees gradually began upon sheets of the adjoining foundation. On others of our colonies we put in a whole row of unfinished sections, because they were not as strong as some others. Although the other rows contained full sheets of foundation, the row containing the unfinished combs of the previous year are the only ones to-day that contain any honey at all. In a heavier honey-flow, perhaps our experience would be reversed.

M. H. HUNT'S APIARY.

HIS ONE-STORY CHAFF HIVE, ETC.

THE cut shows only the central part of our apiary. The large hive is the center, and contains four swarms. It is made quite ornamental, and we all think it a very handy one to work with. The upper story is hinged, and self-supporting when tipped half over. The

Chaff hives suggest outdoor wintering, which we have always practiced, and, with the exception of the great honey-dew year, we have been very successful.

HUNT'S APIARY.

The grass in the apiary is always kept short; and to keep it down close to the hives, so the mower will cut it all, without hitting them, the sod is removed for a space of eight inches all around each one, and cinders packed in. As the grass sometimes grows through this, we are experimenting with water lime; and if it stands the winter without crumbling, we shall use it around and under all our hives.

We have always tried to make our yard attractive, and I think it pays in the satisfaction one feels in looking it over, and showing it to visitors. It also stimulates others to do likewise, which certainly helps our business.

We have sold both of our out-apiaries. We could not attend to them as we wished, on account of our increasing business. Our house and factory are a few rods to the right of the honey-house.

Bell Branch, Mich.

M. H. HUNT.

The apiary presents very much the appearance it did when we visited it a few years ago; in fact, a photographer, we fan-



HUNT'S CHAFF-HIVE APIARY.

rest of the hives (ninety in all), except five or six, are our new style, chaff in the lower part only. The upper part is movable; and when off it is just right to hang in brood or wide frames. Should you wish to get at the brood-frames when the sections are on, it is but a moment's work to remove them all at once. The brood-frames come up even with the top of the lower part. The space for surplus is 21 x 23 inches, and can be used for any kind of surplus arrangement that one happens to fancy. The upper part is made slanting in order to get the cover the same size as the lower part, making it more handy to pack and ship. The whole top is filled with absorbing material in the winter.

cy, might step into the yard at any time and take a picture, and friend Hunt would never have any regrets in having it presented to the public. We do not know whether he always keeps down the grass so that it presents the appearance of a nice lawn. If he does he does better than the most of us. Sometimes visitors call at our apiary, and we have to apologize because of the grapevines that have grown over the hives, and are sticking out in every direction, or because of the long grass that has not yet been mown. We generally get around it by saying we have been "so very busy."

Last year, when we had foul brood, we used to say that, as the apiary was a big expense, yielding almost no revenue, we hardly felt that we could put more money into it than was absolutely necessary. Friend Hunt's idea of keeping cinders under the hives to keep away grass is a good one, though it must be considerable labor at first. If the weeds come through, sprinkle a little salt where they start up. The cheapest way to keep grass and weeds away from the entrance is to sprinkle with salt. A couple of pailsful of rock salt will keep the entrances of a hundred hives clear for the season.

AMONG THE BEE-KEEPERS OF VERMONT.

CONTINUED FROM LAST ISSUE.

BRISTOL is a fine location for a crop of basswood honey, as these trees are plentiful on the hills and mountains. This crop is generally gathered inside of two weeks. In 1883 Mr. Manum's best colony gave 312 lbs. of comb honey. In 1885, when he obtained 19 tons of comb honey, and 3 tons of extracted, from 450 colonies, spring count, his best colony gave 228 lbs. of comb honey; and that season, at the Mills Apiary, near Bristol, his hive on the scales "gained in one day while working on basswood, 33½ lbs.; in 4 days, 123½ lbs.; and in five days, 179½ lbs."

White clover is more plentiful, and yields better on the heavy clay soil in the towns along the shore of Lake Champlain, and for this reason several apiaries are quite a distance from Bristol on the west and north, one being within a quarter of a mile of the lake, and 16 miles from home.

We visited all the apiaries but two of the most remote. All were of great interest to us, but we were especially pleased with the situation of the new one, apiary No. 6.

The valley is long and wide, large enough to give quite a meadow pasturage, white clover being plentiful 1½ miles away. On all sides, except the southwest, were high ridges on which basswood-trees were abundant. Here in an orchard on level ground, well sheltered from cold north winds, they were laying out the new yard.

At each apiary is a building containing work-room and honey-room, and one hive standing on scales. A piece of section on which the hive number is stenciled in black is tacked in the gable of each. Records of each colony are kept on a piece of section, or smooth piece of wood, which is left on the packing inside the case.

In some hives we found the records of several years giving dates of examination, when swarms issued, when requeneed, age of queen, etc., all kept in a kind of shorthand familiar to many bee-keepers. A book account of the important operations requiring special attention at a certain time is also kept in each bee-house. Hives are usually placed in rows 5 feet apart and 12 feet between the rows, when they face each other, and five feet between when back to back. In setting hives, a long line is used, the distance measured off, stakes temporarily driven, and a hive set against each stake and blocked up level. The packing is left about the inner hive the year round, and hives are not changed when once placed, unless to another yard. To prevent an upset during gales in winter, each hive is

tied by a large cord to stakes driven into the ground.

Most of the readers of GLEANINGS are familiar with Mr. Manum's three-legged, swarm-catcher, in the cage of which the clipped queen caught as the swarm issues is confined, and on which the bees cluster, and where they are left until there is plenty of time to hive them. Mr. Manum places the catcher so the caged queen is as near as possible to the flying bees; or if they have clustered, he pushes the cage into the cluster, or near by, and they soon find the queen and settle around her. If the swarm has gone some distance, or is in a high tree, the cage is stood up in front of the old hive. When they find they are without a queen they return, find her, and cluster with her. That they may surely cluster instead of going back into the hive without her, the hive entrance as well as that of one or two hives next to it is covered with a sheet.

Instead of carrying hives for the swarms, the latter are carried to the hives. A part of each swarm, about one-third, is shaken off in front of each old hive, and two or three of these reduced swarms with one queen are put in each new hive.

After the honey season, occasional trips to the out-yards are sufficient. Then where bees are very strong, and hanging out on the hive, new colonies are quickly and easily made without opening hives, by dipping off part of the bees and putting enough with a nucleus, or into a hive of comb having a caged queen.

The bees are mostly Italians. Some of the apiaries have a trace of Holy Land and black blood. The queen-rearing stock is selected out of this large number. Especially good stocks are set apart, and gradually culled down to a few of the best. We saw some fine queens here—good size, with thick and plump bodies, and darker than the usual type.

In the out-yards, the comb honey, when finished, is disconnected from the brood-nest, and remains in the outer case until cleared of bees. In the gable at each end is an auger-hole covered with a beelid, which, if properly arranged, allows bees to leave but not to return. In the honey season this usually works well; but when robbers are troublesome too much dependence is not placed on it, and there is on the inside a piece of wood or tin which may be turned around over the hole, and so all possibility of bees entering be prevented. The cover, which is fitted with a simple device, can be tipped back, and is held by a cord. This saves lifting. To hurry matters, the case is occasionally opened, and a few puffs of smoke given; this causes many to fly out, when it is again closed. When they are mostly out, the clamps are removed to the honey-room and stood in piles just as they are, except that the propolis is first scraped from the top and bottom to prevent them from being fastened together. There they are left until convenient for teams to take them to the home honey-house.

The crop at the apiary near the railroad is cleaned, crated, and shipped from there. In loading, the teams are backed up, the heads of horses covered with a coat or blanket to protect them from the bees, the honey is put in as quickly as possible, and covered with a sheet; the driver mounts the load; and as the horses are started, this covering is pulled off and the bees are soon left behind.

The home building is 16 feet by 34, and 1½ stories high. The upper part is used for storing fixtures,

while below it is divided into three rooms. On the east is the work-shop, fitted with desk, work-benches, and tool-racks; with doors opening into the apiary, and driveway with a stairway leading to the left. Next is the sorting-room, which receives through an outer door the clamps of honey. Here they are emptied, and the sections scraped, which are then stored in the west room, which is 16 feet square, and plastered. This has not been room enough to store the large crops, and much had to be left in store at the out-yards until room could be made. The small crop of last season had been shipped; but piles of clamps containing partly finished or empty combs occupied much of the room. When unloading, they back up to the door, quickly unhitch the horses, and get them under cover, and unload, if possible, before the bees in the home apiary realize their opportunity.

We noticed the hands were on the alert, and lost no time in getting the horses out of the way. The harnesses were made especially for quick work, snaps being used whenever practicable. The importance of this has been learned from experience. At Mr. Manum's farm, just out of Bristol, where he had planned to build a new home and move his home apiary, he has built a new honey-house and work-shop, 30 x 48 feet, two stories high, with a cellar basement. The sorting and storage rooms are to be very large, and each has a wide outer door opening into a shed, into which a team may be driven, horses and all, the doors closed, and honey loaded or unloaded at leisure, without fear of robber bees.

On the farm is another patch of Chapman honey-plants. Altogether he has about a quarter of an acre. He says the bees work on it all the time it is in bloom, and are wild over it; but whether it is best to plant it largely by the acre for honey alone, he is not sure. The plants are quite ornamental, four or five feet in height, and were then covered with round balls going to seed. He also had several patches of Japanese buckwheat, which promised much better than the ordinary kind.

Mr. Manum is interested in gardening and poultry, and he has a hen-house 65 feet long, 16 feet wide, and 1½ stories high, in which were Wyandottes, Plymouth Rocks, and common fowls. The house was conveniently arranged; and in the yards, by means of tubs and connecting troughs, he had arranged his summer watering-fixtures so that, by simply pumping a barrelful in the new building, each yard was supplied. This disposition to systematize work and invent labor-saving devices, is also seen in the hive-fixtures used in the management of the apiaries.

In 1877 Mr. Manum was engaged in the harness business, but was looking for another, on account of failing health. Mr. Smith, now of the firm of Drake & Smith, persuaded him that winter to read "Quinby's Mysteries of Bee-Keeping," which he lent him. He read and became interested, and that spring he bought two colonies; and by increase and purchase he had 20 colonies in the fall. A year or two after, he heard of Mr. Crane, whom he visited and found ready to give ideas which were of help. He tried the American hive and many others; changed and experimented, until by improving and combining he settled upon the hive and fixtures he now uses. He commenced with the 5-lb. box, with glass in one end; then on recommendation of Mr. Crane he tried that with glass on four

sides. Later, they together worked out many sections, crates, and other hive improvements.

The first section he used held about 4 lbs. They were made of pine, and nailed; later he used them holding 1½, 1¼, 2 lbs., and 1 lb.; and now he has discarded all but the 1-lb. box. He has tested the half-pound, and believes bees store honey in them just as well, but does not care to use them, as there are so many more pieces to handle, and make too much work.

We believe Mr. Manum was the first to make a white-poplar dovetailed section. His expenses the last three years have been quite heavy, with a very slight amount for the other side of the account, and affairs have looked somewhat blue; but he feels confident the coming season will be a good one. He fed, the past season, for winter stores, 28 barrels of sugar.

While there we visited the factory of Drake & Smith, who manufacture, as well as their celebrated white-poplar sections, a fine line of small-sized locked-corner boxes, having a sliding cover. They are also of poplar, and are turned out very white, smooth, and perfect. We saw the various machinery used, and were especially interested in that used for gluing and putting together the boxes. This firm also manufacture all kinds of hives and fixtures. Their foreman, Charles McGee, was one of Manum's hands in the apiary, and now owns 170 colonies, which he keeps in two yards, and leaves the shop to care for them during the swarming and honey season. His crop the past season was 1500 lbs. of comb honey.

Another firm in Bristol, Prime & Gove, also make very fine white-poplar sections, as well as hives.

We also visited the apiary of Mr. Edwin A. Hassetline, on a farm near Bristol. He had 75 colonies, and his crop last season was about 500 lbs. He runs the Bristol outer case.

After a visit both enjoyable and profitable, we left the home of those who had done so much to make it pleasant for us, and, by the kindness of Fred Manum, were driven to Middlebury to see Mr. Crane. Fred, a single young man of about 25, is the only son. He manages an apiary during the season, and helps his father at other times; but we suspect he cares more for horses than for bees. We were surprised to see the load of outer cases and hive stands which he managed to pack and pile up together on the double wagon, when they were moving. We did not ask the privilege of riding with him on the load.

Mr. Manum has since met with a great affliction in the loss of his wife, whose helpful sympathy and kind spirit made his home a home indeed. The news of her death, coming when we were expecting and hoping for good news, gave us pain, and roused our fullest sympathy for the husband and son. We shall always remember her kindness.

Pawtucket, R. I.

SAMUEL CUSHMAN.

To be continued.

Thanks, friend Cushman. As we have been following Mr. Manum very closely in his writings, your visit is of more than ordinary interest, because it details some things in regard to our good friend Manum and his work which he himself with rare modesty omits to say of himself. We feel as if we wanted to enjoy the privilege that you have had, of visiting this energetic Vermonter; and we trust that this hope may be realized

by one of the representatives of GLEANINGS in a year or so. We are impressed with Mr. Manum's system all the way through, and we are not at all surprised that he is a *successful* bee keeper. We admire his good sense in using snaps on harnesses wherever practicable, for facilitating hitching and unhitching his team to and from the wagon. We often wonder now why so many farmers and others will go to the trouble of winding a hold-back strap three times around the thill, and buckling, instead of making the same attachment instantly with a snap. In Mr. Manum's case it might save him the destruction of a wagonload of comb honey, and possibly permanent injury to the team itself. If our friend will adopt Mr. S. I. Freeborn's suggestion of using a draw-pin to disconnect the team from the wagon itself by a simple jerk with a chain or rope, he will have his harness rig very nearly perfect. On account of our recent mishaps in hauling bees we appreciate thoroughly all these improvements.

MANUM IN THE APIARY WITH HIS MEN.

MOVING BEES.

"GOOD-EVENING, Whittier. I have brought you a load of bees from Fred's yard. He is getting short of empty hives; and as you have a plenty here, I thought I might as well bring the bees here now as to move the hives. You will find there are but few bees in each box, as I have brought only what bees adhered to the combs after a swarm had issued. While the swarm was in the air he simply transferred the combs and adhering bees from the old hives to the moving boxes, and let the swarm return, to find nothing in the hive but foundation or empty combs. The honey season is so nearly at an end with him that I thought it better to get some more increase now than to keep them all in one hive and get nothing. I think they will both build up strong for winter."

"Well, I must say, Mr. Manum, that you have a very convenient box for carrying bees in."

"Yes, I like it very much. I can move full colonies in very warm weather, without danger of melting down the combs. Last year I moved 100 colonies 11 miles when it was very warm. You see how I have got it fixed. It is simply one of my brood-boxes with a thin bottom nailed to it, and a three-inch (high) rim covered with wire cloth for a cover, held in place by dowels and hooks. This forms a three-inch space over the frames for the bees to cluster, which relieves the combs of so many bees; and with 1½-inch holes near the bottom, covered with wire cloth, gives them a current of air, which is very essential in warm weather; and you will also observe that each comb is secure. They can not move, as each end of the top-bars is set in grooves, as well as the bottom-bar. They are so spaced that the box holds but 11 combs instead of 12, making a ⅝ space between each comb. Now, you see all we have to do is to set the box near the hive they are to be put into. Remove the rim-cover, shake the bees adhering to it in front of or in the hive, and lift out the combs one by one, and set them in the hive, and the work is done. My

wagon-box is set on springs made of steel rods, so arranged that the spring comes from the twisting of the rods. I first set 12 of these boxes on the bottom of the wagon-box, then this rack goes over them, and on the rack I place 12 more, making 24 swarms for a one-horse load. We carry 50 in the two-horse wagon, so that, when we wish to move an apiary, Fred and I with both teams can move 74 colonies at one trip. I must now go home and take off what honey there is finished up, as I want to get an early start in the morning; for I am going to drive out to Ferrisburgh to see how Leslie is getting along."

JULY 20.

"Good-morning, Ed. I just thought I would call a few moments and let old Bill take a rest awhile. I am going out to see Leslie, and it is quite a drive over these hills. How are you getting on requeening your apiary?"

"Pretty well. I have now young queens in all the hives that had two and three year old ones; but some of them are caged yet. I am to liberate the last lot to-day. You got those queens all right that I sent you, I suppose."

"Yes, sir; and they were nice ones too. What kind of candy is that that you use for queen-cages? Is it what they call the Good candy?"

"No, it is the Manum candy. I have used it for about ten years. It took me two years to get it to suit me—or at least to suit the purpose for which I wanted it. The beauty of this candy is, besides being a perfect bee-food, it will never dry up and become hard. I have kept it four years in an open dish, and at the end of that time it was as good as newly made candy. I kept the secret to myself until three years ago, and then I told only one man how it was made; but within a year I have told several."

"Then you have no objection to telling me, have you?"

"No; I am willing all should have the formula now, and here it is:"

MANUM'S QUEEN-CANDY.

Take 8 spoonfuls of coffee A sugar; 1 of wheat flour; 1 of glycerine; 2 of granulated honey.

"First thoroughly mix the flour with the sugar, then pour the honey and glycerine in a tin dish; then the sugar, and set the dish into another larger dish partly filled with hot water (I use an ordinary glue-pot); set it on the stove and let it simmer until the sugar is dissolved, then remove to cool, when it is ready for use. If the honey is thin it may be necessary to add more sugar or use less honey."

"Now one word before I go. Be very careful about exposing honey after the bees stop getting it from basswood, and that will be very soon now. When you notice them hanging around the honey-house it will be a warning to you to be very careful, as it will take but little to set them to robbing."

"How do you do, Leslie?"

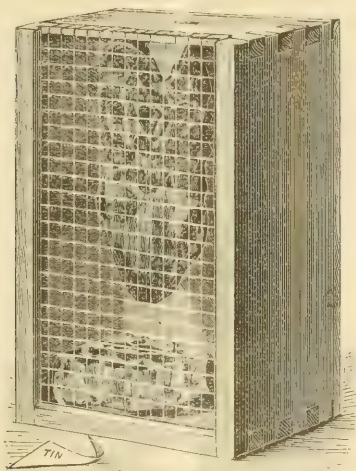
"Good-afternoon, Mr. Manum. You are quite a stranger here."

"Yes, I have rather neglected you this year; but the truth is, I have had my hands full since the season commenced; and besides, I felt perfectly at ease, knowing that you would do as well without me, as you have worked at the bee-business long enough now to be thoroughly posted."

"Well, I have done as well as I could; and by corresponding with you often I have got along pretty well so far."

"Well, Leslie, I have brought you something

new. You know I have been experimenting for a number of years with queen-nurseries, and never fully succeeded in getting one that suited me. The little tin incubators I made four or five years ago work very well, but I am always worrying for fear they will set the building on fire. But the other day I hit upon a nursery that works to perfection, and here it is.



MANUM'S QUEEN-CELL PROTECTOR.

"Simply a frame filled with little boxes which have a wire-cloth cover. You see, my frame takes just 32 of them, but I prefer a half-frame holding 16, like this one. All you have to do is to hang the cells on these tin points, and hang the frame in an upper story in place of a comb, and let the queens hatch; or if you prefer you can hang the nursery in the body of the hive under the sections, but it is handier to get at in an upper story. I have now eight of these nurseries filled with cells, in my home apiary, and one to each of the other apiaries. I am making more as fast as I can, so all can have five or six.

"I want you to be sure to discard all queens over one year old, unless you have one or two very extra good two-year-olds that you will want to breed from next season. I am thoroughly determined not to winter any queens older than one year."

"Well, that is just what I am doing; and you will find I have not increased the number of colonies in this yard very much. When a two-year-old queen swarmed out I killed her and let the swarm go back, and I kept the cells cut out until they had nothing to raise a queen from; and now I am giving them virgin queens as fast as I can hatch them; and by giving them plenty of room in the boxes I find they work quite as well, but more especially after I have given them a queen."

"Yes, after you give them a queen they carry up the uncapped honey from below to make room for the queen to lay. I am teaching Scott and Fred this year how to run them in this way—especially those colonies that have cast a swarm—by keeping the queen-cells all cut out until the brood is too old to build more; and in 16 to 18 days after the swarm issued, give them a virgin queen. There is no danger then of second swarms, and it is a very easy

way to requeen an apiary from choice stock; and by the help of these nurseries it will now be nothing but fun to hatch queens. Well, I have made you quite a visit; and as I see nothing out of order here, I will hitch up old Bill and start for home."

Bristol, Vt.

A. E. MANUM.

We are interested in your bee-candy. We suspect that one of the elements which contributes to the success of your candy is glycerine. It is this, doubtless, that keeps it soft so long. Just now we are making the Good (or Scholz) candy as follows. We select some of the very nicest alsike or bass-wood honey that we have in stock. This we heat until it becomes quite thin. To this we add confectioners' powdered sugar, and knead it into a stiff dough. But this candy, if allowed to stand awhile, will run and become soft. To prevent this we add common powdered sugar, kneading it over to make as stiff a dough as possible. We have found that a mixture of the two sugars gives better results than either one alone, and our losses in bees and queens sent out have been reduced to a very considerable extent, so that now we scarcely have reports of bees dying, even during hot dry weather, most unfavorable for shipping bees. Well, now, may be your candy is better yet. We are going to give it a test at any rate.—We received your sample queen-cell protector, and instructed our engravers to make a full-sized engraving of it. The tin which supports the cell is shown in front of the cage. It is passed through the little slot shown on the top of the cage. The wire cloth is made to slide in a groove, so the hatched queen may be easily taken out and another cell put in the place of the one now empty. The principle of the queen-cell protector is about the same as that illustrated and described on page 201 of Alley's Beekeeper's Handy Book; and, as nearly as we can judge, Alley's queen-cell protectors are used very much on the same plan. Such a queen-hatcher works well, and we have tried them considerably.

MUD-WASPS, SNAKES.

FRIEND COOK:—I send you to-day a nest which I first thought was a wasp's nest; but on investigation I found it full of spiders. I found it in the upper part of a hive. Will you kindly describe it in GLEANINGS?

Fremont, Mich., July 2, 1889.

W. E. GOULD.

Prof. Cook replies:

The nest is that of the mud-wasp, probably some species of *Sphex*. These wasps have long peduncled abdomens, and are interesting in that they do not kill the insects which they furnish to their yet unhatched larvæ. I have often found live spiders entombed in these clay sepulchers. The wasp paralyzes the insect, spider, etc., places it in the mud cell, lays an egg on it, and seals all with clay. When the wasp egg hatches, the young or larval wasp feeds on the still living food prepared by its parent.

COPPERHEAD SNAKES.

I wish to thank GLEANINGS, for through it I have received from J. R. Atchley, Arlington, Texas, a beautiful copperhead. This, though very poisonous, is really one of the most beautiful of American

snakes. I am delighted to get it. Though sent in a close box all the way from Texas by mail, it came safely, and was lively upon arrival. I should like to get the other Southern snakes, especially the moccasins. I would pay for expense and trouble. They can be sent at my expense. I am told that it is unlawful to mail them. A. J. Cook.

Agricultural College, Mich.

A GOOD YIELD.

ORGANIZING A CONVENTION.

I HAVE secured two tons of comb honey, and extracted three and one-half tons, making 11,000 lbs. All of it is clover, except some that is mixed with linn. Prospects are good for more honey yet. I have increased from a trifle over 120 colonies to 195. My bees are all Italians; but as soon as I can find time I expect to experiment with Carniolans, but more for amusement than in hopes of finding a better bee than the Italian.

What is to prevent us bee-keepers of Western Missouri and Eastern Kansas from having a rousing convention in the fall? Doesn't it look too bad to have such a host of bee-keepers in a good honey-producing country, and never a meeting of any kind! We could meet at some town that has the proper conveniences, without very great effort; and if it is not too soon I would suggest that we have a convention at Higginsville, where, I'm satisfied, we could be furnished suitable accommodations at a great deal less expense than at Independence or Kansas City. I am satisfied that, if we would try, we could get up a convention that would be of assistance to us in the way of giving us a chance to shoot off our ideas, and air them a little.

PREVENTION OF SWARMING.

I found a cure for swarming this season by removing most of the capped brood and replacing with empty combs. This plan, if used with judgment, will not interfere with work in the sections, and will prevent swarming if care is taken and plenty of room given as it is needed; but unless you have weak colonies or nuclei to build up, you will increase some, which, if not wanted, can be doubled back into the hives as fast as the bees hatch out of the combs. R. L. TUCKER.

Lexington, Mo., July 4, 1889.

BEEES BITING HOLES IN CAPPINGS.

VALUABLE SUGGESTIONS FROM DOOLITTLE.

I HAVE read the different articles written by friend Manum, in late numbers of GLEANINGS, with much interest, and I find that his mode of working for honey corresponds very nearly with my views on the subject. There is one little item which I wish to notice, however, which must be either a mistake of the typo or else Mr. Manum must have fallen into an error, according to my experience. On page 535 we find him saying to Scott, "No, no! don't smoke them, as that will cause the bees to bite holes in the cappings and spoil the looks of the honey," while a few paragraphs further on, Scott says that the scale hive showed the day before a gain of 18 pounds of honey, so that we infer that honey was coming in very plentifully at the time friend Manum fears that the bees will bite holes in the cappings if the bees were

smoked. Now, according to my experience those bees could not have been smoked enough at that time to make them bite into a single capping; for when bees are getting honey at the rate of 18 pounds a day, nearly every bee is as full of honey as it can well be, hence could have no desire to take more honey, even if it "lay around loose." At such times as this it is only fun to get the bees out of sections, for they are so heavy with honey that a little shaking will cause them to rattle off the combs like beechnuts off a tree when they are fully ripe. Here is a point in bee-keeping which I have never seen noticed that I remember of, which is, that the same number of bees will occupy nearly double the space when honey is coming in plentifully that they do in a time of honey dearth. During our peculiar season, the present year, the bees were nearly starving just before the basswood bloom; and as but little brood was reared 21 days before basswood opened, there were but few bees hatching to replenish those in the hive; yet when they began to get honey from the basswood, the bees which before occupied only the brood-chamber to the hive so expanded that they now filled nearly as much room in the sections as there was in the brood-chamber, or double the room they did a few days before. I do not believe in smoking bees any more than do Messrs. Manum and Root; but in all of my experience I have never had holes bitten in the cappings to honey except in times of scarcity, and in such times it is hardly possible to get the bees off section honey without their doing more or less of this work, unless they are immediately shaken off the honey, or driven down into the hive before the sections are removed.

DISTURBING NUCLEI.

On page 533 I see that friend Root was annoyed when raising queens in upper stories by having to disturb his nuclei in the upper hive every time he wished to get to the lower one, and thinks that this is an objection to my plan of working. To overcome this difficulty I tack the queen-excluding honey-board lightly to the bottom of the upper story or hive, so that at any time when I wish to get to the brood-chamber all I have to do is to lift off the upper story and set it to one side, the same as I would do were there no queen-excluding honey-board between the two, nor any queen-cells or nuclei about the hive. When doing this the upper cover is not touched, hence this upper hive is really not disturbed in the least in getting at the brood-combs below. Perhaps it would not be more than right for me to say that, during the time of scarcity of honey, and when it was coming in very slowly from clover, I did not have my usual success in getting queens fertilized in upper stories, so I fear that this part of the plan, as given in my book, may not work with all, especially those who do not have a heavy honey-flow at any time during the year. As I had in previous years sold myself short of bees, and used so many from my stronger colonies to start the queen-business early, I did not tier any hives for extracted honey till into the basswood bloom, hence I had an experience with it only in the height of the honey-flow and afterward. Now that the basswood is in bloom I am having success again. The queens were allowed to hatch as usual before basswood; but when they became three or four days old the bees would begin to persecute them, which finally resulted in their death, and in one or two instances in a general row "upstairs,"

in which many bees were killed. It may also be that the reason lies in the fact that queens are more easily superseded the latter part of the season, that being the time in which the bees do the most of this work where left to do it themselves.

While this part partially failed, the getting of nice queen-cells above the excluders was a perfect success, even when the bees were living only from hand to mouth, as not a single failure occurred.

PREPARING FOR WINTER.

Perhaps some will think there is time enough to talk on this subject three months from now; but I wish to say that I have found that August is the month in which we lay the foundation for our success or failure in wintering bees. All colonies should be reinforced and made strong during this month, or in the breeding, not in the fall. If any queens are old and feeble they should be superseded at once, and not wait till into September, for the eggs laid during this month are to make the bees which are to go through the winter—yes, and those that are to do the work the succeeding spring. I had my eyes opened considerably on this point this year. Last year I bought some hybrid bees, one colony of which were nearly black. Into this I introduced an Italian queen the 20th of August; and as she did not breed very much last fall, of course the bees going through the winter were mostly hybrids. I watched this colony very closely, and you can see that I learned something new when I tell you that there were quite a number of nearly black bees going in and out of the entrance July 4th of this year; hence these bees were nearly if not quite ten months old.

G. M. DOOLITTLE.

Borodino, N. Y., July 16, 1889.

FOUNDATION VERSUS COMBS.

IN FAVOR OF EMPTY COMBS IN THE SURPLUS APARTMENT.

AS Dr. Miller desired a statement from different bee-keepers as to their success with sections filled with old combs left over from the previous yield, I herewith give you my plan: I always have more or less comb left over from year to year. In the fall of 1884 I had 3000 sections partly filled with honey. It was extracted or fed back to the bees. In 1885 there was no honey; 1886, clover yielded enough to rear large quantities of brood, so the 25 old stands swarmed in June. I sandpapered my sections and scratched off the end of the cells $\frac{1}{2}$ of the way down to the base, and put them on the 25 new swarms. As fast as the bees hatched in the old hive, the bees were brushed off into the new swarm, leaving just bees enough to care for the young queen in the old hive. Basswood opened July 10, lasted 14 days; and those 25 new swarms gathered and stored 3000 lbs. of basswood honey in the 14 days, all sealed. I had over 1000 partly filled sections which were extracted. The old combs looked as fine and white as those just drawn from foundation. In 1887 we had no honey, and not much in 1888. This year I had 30 Heddon supers filled with sections containing old combs. I went through the former method, excepting that I filled a good many crates alternately with old combs and one with foundation. They are still on the hives. The combs are filled with honey, and sealed, while the foundation is fairly worked out with some honey. Some of the old combs are worked away out into

the next section of foundation. I use no separators. I prefer giving supers of foundation to heavy swarms which will immediately occupy them. Basswood will now soon open. It is just loaded with buds.

J. R. REED.

Milford, Wis., July 10, 1889.

Your testimony is strong in favor of unfinished sections. See our remarks at the foot of J. A. Green's article, in the current issue.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE DOVETAILED HIVE JUST THE THING.

THE hives and other goods came all right, and in splendid shape. You beat the world on fine goods at low prices. The Dovetailed hive is just the thing to put bees in; and the section-holders are the nicest arrangement for the double chaff hive, better than a crate. Ten holders put crosswise fill the bill, and a person can get them out easily.

SHIPPING BEES FROM NORTH TO SOUTH TO CATCH THE HONEY-FLOW.

If nothing happens to prevent, I want to go to Florida this fall with 200 swarms of bees to catch the honey-flow from orange-blossoms. I have been thinking about the Dovetailed hive ever since it came out. I have been shipping bees in light cases, and I came to the conclusion that I would have the Dovetailed hive shipped in the flat. But since I saw your letter, explaining how it could be used to ship bees in, I think it is just the thing to kill two birds with one stone. You may think I am wild, but I am not. If bees can be shipped from the South in the spring, and do better than bees wintered here, why won't the rule work both ways? They claim the trouble is to get bees ready for the orange-blossoms. I am going to take them there ready for work.

C. E. JONES.

Delaware, O., July 11, 1889.

Yes, sir, friend Jones, the Dovetailed hive will be just the thing for shipping bees from north to south. We should be glad to have you report the success of the enterprise.

WHY THE BEES WILL NOT RAISE A QUEEN.

Please unravel the following knotty and to me mysterious behavior on the part of a colony I have. They cast two swarms, and afterward lost their queen (I saw her after she was hatched). I presume she was lost in her wedding-flight. The hive has remained entirely free from eggs or larvæ, showing the absence of even a fertile worker. I gave them a frame containing eggs, which they either destroyed or ate up. I then gave them a queen-cell which they tore open and demolished. I then gave them a frame containing eggs, larvæ, and sealed brood. The eggs were destroyed, and the larvæ, I think, sealed up; but no queen-cell made—we can not find a queen in the hive. All the frames are filled with honey, save the one with brood, I gave. Would it do to give a queen, or break up the colony and combine with other colonies? We can not find any thing bearing on this case in the A B C.

W. B. ROHMER, M. D.

Bay St. Louis, Mo., June 12, 1889.

It is not at all unusual for bees to refuse to

accept a queen, after they have failed one or more times in raising one. I should think it quite likely they had something among them that they treated as a queen; and though she never lays eggs of any kind, this bee will be the ruin of the colony if she is not put out of the way. Treat them exactly as you would a case of fertile workers. Give the colonies several frames of brood, with bees adhering, or unite them with a weak queenless colony, which amounts to the same thing.

BURR-COMBS; CAN THEIR ATTACHMENTS TO THE SURPLUS APARTMENTS BE AVOIDED WITHOUT THE HONEY-BOARD?

Can we make our new hives so as to discard the honey board and not have burr-combs built between the brood-frames and section-case? If not, why not? Yes. By making the top-bar $1\frac{1}{2}$ wide by $\frac{1}{2}$ thick, and closing them to $\frac{1}{8}$, you will not have any more dauby messes by tearing off honey-boards, nor will you have any burr-combs built between the brood-frames and the section-case. I used this kind of frame last year, and this in about 80 colonies, and I have yet to find the first bit of burr-comb between. It brings the sections close to the brood-nest, and the bees are quick to enter them.

A. L. KILDOW.

Sheffield, Ill., July 8, 1889.

We do not know but there is something in what you say, friend K. We have a hive out in the apiary, with top-bars $1\frac{1}{2}$ inches wide, and spaced $\frac{3}{16}$ inches apart. Although there are fewer burr-comb attachments to the cover it does not prevent them entirely. It has been claimed before, that top-bars one-half or even a full inch thick, and $\frac{3}{8}$ wide, will do away with burr-comb attachments. We should be glad to hear from others on this point.

A 5-CENT PACKAGE OF JAPANESE BUCKWHEAT, AND WHAT IT DID.

Please find inclosed 17 cents, for which send me some Japanese buckwheat and one bee-brush. I planted the 5-cent paper you sent, early in the spring, and saved about a quart of seed. I planted that the first of June, and it is now in full bloom, and very attractive to the bees. I wish to plant some more; and if I wait until the seed matures I fear it will be too hot and dry. I think it is the first buckwheat ever grown in this part of the State, that is attractive both to people and bees. I also have a few of Simpson and spider plants, which the bees do not notice. Mignonette, bee-balm, and bee-clover they are continually humming over.

MRS. ROSE RILEY.

Columbus, Tex., June 23, 1889.

COMBS BUILT CROSSWISE OF THE FRAMES; WHAT TO DO.

The first of last month I obtained three swarms of bees from a neighbor, the first swarm I had ever seen. I put two of them in Simplicity hives; the other was put in a box hive with the intention of transferring it. The trouble is, with the Simplicity hives, the frame in one of them got out of place in some manner, and they have built their combs between the frames attached to the slatted honey-board, so that I can not take a single frame out. The frames in this hive had starters in them, and were contracted to six. The other one had no

starters in, but the full number of frames, 10. The bees, instead of building their comb to the comb-guides, built to the space between the frames, so that none can be removed except two on one side that have not been built on yet. Would you advise me to take out part of the frames containing honey, substituting frames of foundation? I want to put Italian queens in them. There is nothing in your book so indelibly stamped on my memory as your advice about starting with a few colonies. There are several small things I have learned, that, had I had several colonies, might have been costly lessons to me.

J. C. SINGLES.

Strickersville, Pa., July 6, 1889.

We should think, from the account you give in your letter, that in one case your frames were improperly spaced. In the other case they were jarred out of position, as you say. Either one would cause combs to be built crosswise, or in between the frames. We would advise you to pull the hive apart, having previously given them a good smoking. Select the cards of comb that have brood in; put them into frames, and fasten them with transferring-clasps, or in any of the ways that are usually adopted in transferring. The combs containing only honey had better be used up on the table as chunk honey. The rest of the space fill up with frames of foundation. Be sure next time to space each frame so their common centers shall be $1\frac{1}{2}$ inches apart. The tips of the fingers, shoved between the top-bars, will usually make the right spacing.

DOES IT PAY TO FURNISH ALSIKE SEED FREE TO FARMERS WITHIN A MILE AND A HALF OF THE APIARY?

I have something over 70 stands of bees. I have an offer from some farmers within a mile of me. They say they will sow all the alsike clover seed that I will furnish. The question is, will it pay?

Sabina, O., July 6, 1889.

N. SHUMAKER.

It is a hard matter to answer your question by a direct affirmative or negative. Perhaps we should say this: That we are in the habit of furnishing alsike clover seed, free of charge, to farmers within a range of a mile and a half of our place. In like manner we furnish the buckwheat. A good deal depends upon your locality as to whether it will pay, and the amount put out. One of our bee-keeping friends—a Mr. Chase, in a neighboring town—buys his alsike and sells it to the farmers at a reduced price. We believe he has within range of his bees something over 100 acres of alsike. Of course, where a bee-keeper is able to sell the seed to the farmers, the question as to whether it will pay or not is not so hard to settle. Generally speaking, however, we think it does pay to furnish farmers within a mile and a half of the apiary as much alsike seed as they will sow.

BEEES TOO NEAR A HIGHWAY; HOW TO MOVE THEM BACK.

I live within five steps of a turnpike road, and my bees have been a source of great annoyance to people passing. I have been very uneasy in handling my bees, for fear they might make some horse run away, and do damage. So great has been my

fear that I have not been able to do any thing with the bees. I ought to cut out queen-cells and do a great many other things, but I dare not for fear of the annoyance to passers by. I have had a notion of moving them back about 50 or 60 yards, but I did not know whether I could do it or not. My bees have been unusually cross this year, on account of rainy and cool weather, and at this time of writing they are most of them clustering in front of the hives. They have been dragging out drones for two weeks. If you think I can move them back without any great loss, please tell me how. If I can move them, when would be the proper time. This fall or next spring? I leave bees on summer stands all the winter. G. W. REAME.

Franklin, Tenn., July 3, 1889.

Under the circumstances we would not advise you to keep your bees in their present location. You had better move them to the back part of your lot, at least far enough from the highway so that no annoyance can occur. It is not usually possible to move bees a short distance without some inconvenience or loss; but if you have only a few colonies I would advise you to move them all back at night, at once. Change the appearance of the old location, and make every thing look as strange as possible. At the same time, make the new location resemble as much as possible the old one; at any rate, put each hive in the relative position it occupied on the old location. If the bees should cluster on the ground near the old location, scrape them up, mix them together, and make a nucleus or colony of them, and take them back among the other bees. For further particulars, see "Moving Bees," in the A B C of Bee Culture. Also see R. Powell's article in GLEANINGS for July 1, p. 531.

A VARIEGATED CALIFORNIA GARDEN.

Few people who plant gardens for beauty are aware of the great number of plants with variegated or odd-colored foliage. True, we have many plants which are almost constant bloomers, but a plant with beautiful foliage is itself a flower which lasts through the entire season. Do you wish to plant fruit-trees in your garden? Our beautiful purple-leaved prunus, *Pissardi*, bears a very fair plum; and the fruit of the peach-tree with purple leaves is by no means to be despised. Here in California we have evergreen orange, lemon, and lime trees, whose leaves are most beautifully marked with yellow, white, and green. Some of my apricot-trees are gray with light and dark green variegation.

You can have corn (*Zea Japonica* var.), and lovely foliage beets of half a dozen varieties. Our Chilean beets have been as much admired as any thing we have in our garden. We raised our abutilons, with their beautiful spotted green and yellow leaves, from cuttings. They rooted readily, and in four months were blooming profusely without a drop of water from the time I planted them. I think our dry summers heighten the variegations. I paid a dime for my *Althea* var., but its yellow-white and green leaves are not so pretty as those of the *wiegela* or the very showy *euonymus*. The *wiegela* grows easily from cuttings too. The purple-leaved *filbert* which I bought proved to be plain green; but the purple *barberries* keep their colored leaves the whole year. We have rubber-trees of the glos-

siest evergreen; but when my wife learned that there was a variegated *Ficus elastica*, the glories of the others were faded. Our beautiful green *dracena* was forsaken when I brought home one with red leaves, and our common maples looked faded beside the varied foliage of their Japanese cousins.

Our spotted callas suffer from want of water, and our sun is too hot and dry for the *caladiums*, *crotons*, and the half-dozen kinds of *coleus*. I think the last will do fairly well when it is a year old. *Tradescantia multicolor* fades in our hot sunlight.

Nothing is prettier of its kind than the old-fashioned ribbon-grass; and it stands drouth and heat very well, and keeps fresh all the year with me. My *Eulalia Japonica* looks very much like it; but the *Eulalia zebryna* is an oddity, for its stripes go across the leaf. No other plant is thus marked except one other from Japan (the *Scirpus*).

But if I should tell you all about my acalphas, *alternatheras*, *aloes*, *amaranthus*, *stevia*, etc., brother Root would surely say, "Waste-basket," so I will just wish, in closing, that you could see our *geraniums*. Their leaves are gorgeous, and they stand drouth better than almost any other plant, unless it be the variegated myrtle, or *vinca*.

Springville, Cal.

C. M. DRAKE.

EXTRACTING FROM YOUNG SWARMS, ETC.

(1) Do you think it would be safe to extract honey from the frames of the young swarms, after the 1st of August, providing they have plenty of honey?

(2) Do you think bees could be moved a mile at this time of year without their going back to their old location?

F. N. PERDEW.

Henry, Ill., July 18, 1889.

(1) You can extract from surplus frames, but we would hardly advise you to take any from the brood-nest. In most localities, or at least in our own, there is very little certainty in getting very much honey after the first of August. It is safer for beginners to leave the brood-nest alone. If you get a good fall crop, give the bees empty combs in which to put it. These sealed combs will come very handy for distributing stores just before putting bees into winter quarters.

(2) Most of the bees would stay in their new location, although doubtless some would return to their old stands. If you move them a mile and a half, we should expect very little going back; two miles, ordinarily, none at all. If you move them a mile, change the appearance of the old location as much as possible, and in the new location put the hives in the same relative position they occupied formerly. See answer to G. W. Reame, in the opposite column.

CLOSED-END FRAMES; FRIEND HEDDON'S SUGGESTION ON P. 536 BEING TESTED.

I notice on page 536, July 1, that Mr. Heddon has exactly described the hive I am using. I never liked the beveled edge nor the Heddon L. hive with the bottom-board fastened, so I made a hive with a bottom-board and cover the same as the patent Heddon. The brood-chamber is 18 x 11½ x 9 in., which holds 8 frames, the closed end resting on the strip of tin extending in ¼ inch on the bottom end of the hive. This is a reversible frame or hive. I use two of these stories on strong colonies for extracted honey, and a super with sections on top. This hive has given me the best satisfaction of any

I have tried yet. I can winter bees better in this hive than in any chaff hive ever made; in fact, for wintering bees outdoors I would rather buy the above hive than use chaff hives furnished free. I use a single brood-chamber of soft pine, unpainted, for wintering, which is inclosed in another hive one inch larger, or, rather, with an inch air-space between, which gives me a double-walled hive with one inch of dead-air space all around. My bees are always strong in spring, and breed up early. This and the Heddon hive are the hives of the future.

Clarion, Pa., July 12, 1889. J. T. FLETCHER.

PURE ITALIAN DRONES; IS THE DRONE ONLY THE SON OF HIS MOTHER OR NOT?

Is the question settled beyond dispute, that a queen of pure Italian pedigree, but mismated, produces hybrid drones, or is it still open to positive proof? I know that several well-known breeders hold they are hybrids, but that's not proof. I am interested in the mother, for the other day I found a young Italian queen, without wings, laying, of course, nothing but drone eggs, and the drones were the brightest of any in the yard. Now, if those drones were good, why should they not be equally so if the queen could have flown and been mismated?

H. F. HART.

Avery, La., July 6, 1889.

It is commonly supposed that the drone is the son of its mother only; but G. M. Doolittle and one or two others have ventured to question this statement. Our experience and observation, however, have rather tended to sustain the statement of Dzierzon and Berlepsch, that the drone has only one parent. Here is a chance for careful experimenting.

THE FOOD COMMISSIONER SEEKS INFORMATION IN REGARD TO ALLEGED ADULTERATED HONEY.

Mr. A. I. Root:—Cleveland papers charge that parties are manufacturing an entirely artificial honey-comb from paraffine, then filling it with glucose, and selling it for pure honey, although there is no part of it the product of the bee, or, at least, not more than to give it flavor. I have looked the markets through somewhat in this city, and talked with men who seem to be conversant with bee matters, and I can not find, thus far, any foundation for the articles in papers. It is claimed here, however, that bees are sometimes fed glucose or cane sugar, and an inferior article of honey is produced, also that glucose syrup is added to strained honey. I am anxious to lend any assistance in my power to the consumers and producers of honey, and write you for information. Do you think that honey made from or by bees fed on sugar or glucose could be called adulterated? and do you know whether there is any truth in the charge made in the Cleveland press? Can it be done successfully? and have you any means of knowing if strained honey is being adulterated with glucose? and if so, who is doing it? The whole subject is new to me, and any thing that you may say will confer a favor on all honest producers.

F. A. DERTHICK,

Food Commissioner of Ohio.

Columbus, July 13, 1889.

Upon receipt of the above we replied as follows:

Mr. F. A. Derthick:—As we notice you are the Ohio Dairy and Food Commissioner, we take pleasure in answering your kind letter of the 13th inst.

We inclose you half a dozen cards, offering \$1000 for samples of manufactured comb honey. These cards will give you the whole status of the thing in a nutshell. This offer has been out now for two years; and although we have distributed thousands of them, and although the same has been published in a number of newspapers, no one has even taken the pains to write us that he could fulfill the conditions of the proposal. We also send you a sample copy of our journal, "GLEANINGS IN BEE CULTURE." Please read the article on page 543.

In regard to feeding glucose to bees, we would say it *can* be done, but it would not pay to do so, because it would cost more to get the bees to put the stuff into their nice combs than the bogus article would bring afterward on the market, even if sold at the price of A No. 1 honey. Liquid or extracted honey may be adulterated, but usually there is not enough money in it to do it. When good pure California honey can be bought for 4 or 5 cts. per pound by the carload, it is not at all likely that dealers would go to the trouble of adulterating it with glucose, an article which costs nearly or quite as much per pound. Notwithstanding these newspaper stories to the contrary, you will see that plain common sense, and the application of a little arithmetic, show that very little honey is adulterated. We should be glad to have you use your influence in removing the ban of suspicion from honey.

THAT TESTED QUEEN.

The first queen (tested Italian), received from you May 14, was accepted May 15; introduced to a two-frame nucleus of young blacks. She got down to work in short order, and to-day \$10.00 would not buy her. She has ten frames full of mostly capped brood, and the colony is large enough to swarm. They are always working, while the others lie idly about. The last two queens received from you came in fine order. I introduced by dropping into full colonies immediately after catching the old queen. I can always tell by the way the bees act whether all is well. One came out and flew around four times, and doubtless would have been flying yet, but I caught her and clipped a wing, and that settled it. This has been

BY FAR THE BEST SEASON

we have had for some time, and honey has been produced by the ton. Just here harvest is about over, and drones are scratching, but the Italians are very busy. In the timber, however,

FIREWEED

is at the best, and bees are very busy. Oregon is slow to adopt modern appliances, and but few enthusiasts are to be found; but as the State fills up we shall be able to give better reports.

Portland, Or., July 11, 1889.

E. J. LADD.

JAPANESE INFERIOR TO SILVERHULL BUCKWHEAT FOR HONEY.

Well, Uncle Amos, I have just come in from the buckwheat. It is in full bloom, and there are ten to one more bees on the silverhull than on the Japanese. It was so last year on my place; but the Japanese was so boomed through GLEANINGS I thought I would hold still for a while; but when the same thing occurs again with the two kinds side by side, on the same kind of ground, I wondered if the booming had not been a little strong, in order to sell the stuff. The Japanese stands up some better and gives longer, larger grain, and will

bloom a little longer, and perhaps yield a few more bushels per acre; but as a honey-plant, with me the silverhull is far ahead. The 500 sections came to hand all right.

J. W. C. GRAY.

Atwood, Ill., July 10, 1889.

Your experience doesn't seem to agree with others'. The Japanese, according to most reports, has fully equaled the other buckwheats as far as the yield of nectar was concerned; but in grain yield, in every case it has been vastly ahead. We should be glad to hear from others as to the comparative yields of nectar.

TO GET THE BEES TO CAP THE TOP ROW OF CELLS.

I can't get my bees to cap the top row of cells in the sections which are in T supers. What can be done to remedy it? I couldn't find any thing about it in the A B C.

C. F. MCCOLM.

Lexington, Ill., July 10, 1889.

We sent the above to Dr. Miller, who replies as follows:

The T super differs in no respect from wide frames or other receptacles with regard to finishing sections. The upper part of the section is sealed over before the lower; but as a general rule the row of cells adjoining the wood at top, bottom, and sides, remains unsealed. Sometimes they are filled with honey, and sometimes left empty. I do not know what the conditions are, to secure the complete sealing of this outside row of cells, and I shall be glad to hear from any one who does. Perhaps a heavy flow of honey and a somewhat crowded condition in the hive is all that is necessary; but the majority of sections have this outside row of cells uncapped, whether raised in T supers or what not.

Marengo, Ill.

C. C. MILLER.

WINTERING QUEENS IN NUCLEI.

Is it possible to winter queens in three-frame nuclei, such as I have ordered, to have for building up in spring? A B C and Root's Quinby do not mention it. Is it now too late, if possible? My single box colony has grown to 6 very good ones; 2 are rather strong, and working in the sections—induced to by Dr. Miller's plan. I shall increase to 15 or 20 next year.

J. B. ENOS.

Connellsville, Pa.

Yes, it is possible to winter queens in 3-frame nuclei, providing that the same is packed in chaff hive, between two division-boards, or providing they are to be put into a good dry cellar; but it is usually better to have a stronger colony—one that will cover 6 frames will usually winter very successfully. We have wintered a great many 3-frame nuclei in chaff on their summer stands, but we prefer stronger colonies.

SERIOUS STINGING IN THE THROAT, BUT NOT FATAL.

A neighbor of mine who keeps a lot of bees in box hives wished me to take some honey out of the top they had made there. I smoked them and took a long knife and cut out the combs, which contained honey and some brood. When I had finished he gave me some of the honey to take home, and that honey came very near being the death of my wife. She put a piece of the comb in her mouth; and as it so happened one of the cells contained a bee, which stung her on the tongue, which swelled so large, and her throat also, that she came very near dying from suffocation. She could hardly speak so as to

be understood. You can just think how much I thought of bees about that time. But the good Lord spared her life. I wish you would print this in GLEANINGS, as a warning to others to look out.

Durham, Ct., July 10, 1889.

C. L. ROSE.

BEES IN A HOLLOW ROCK.

I have a rancho in Texas, on which there is a cañon about 100 feet deep, and about half way up in one of the solid walls there is a hole in which I have seen the bees coming and going in a stream about as big around as a barrel. It has never been robbed, as no one can get to it without infinite trouble. I have written you for a smoker. I have one hive here in the city, and four in the country. I think I shall get more. The hive here is doing famously. I see the bees rushing in, loaded down with honey. They beat any thing I ever saw for hard and hurried work.

A. L. REDDEN.

New Orleans, La., June 29, 1889.

There are several places in California such as the one you mention; and one place was pointed out to me where a man lost his life in attempting to take out the honey. The bees went at him in such numbers, and stung him so fiercely, he lost his hold and fell upon the rocks. Where you speak of a stream of bees as big as a barrel, I suppose you mean that a space equal to the size of a barrel is pretty well filled with bees on the wing, going to and fro.

J. D. FOOSHE EXPLAINS.

I shall be glad if you will say that I have never seen Mr. Doolittle's book. I read last year in GLEANINGS, I think, where he gave his plan in detail as to how he reared his queens by nature's plan. At that time I think he said that he saved all the old cell-cups, and transferred eggs or larvæ; and this year, in the *Queen-Breeder's Journal*, I read another article giving the same plan, with perhaps his plan, of using the manufactured queen-cell cups, in which he said he transferred larvæ and had cells built out in upper stories, with queen present. I tried transferring eggs, or larvæ, to old cell-cups, and made such a poor success that I thought of the plan of letting bees start cells and transfer them to upper stories. I gave friend Doolittle credit for my plan for it was suggested to me by him. Friend D. has a masterly article in the April number of the *Queen-Breeder's Journal*, upsetting the Dzierzon theory. I can't help but believe he is right, so far as my experience goes.

Coronaca, S. C., July 8, 1889.

J. D. FOOSHE.

NATURAL HONEY-COMB WITH SQUARE CELLS.

I have a piece of new honey-comb made entirely by the bees, the cells of which are square (4-sided), and the bottoms of the cells are quartered instead of being in three parts; there are about 50 contiguous cells like this, and the surrounding comb has regular 6-sided cells. Is this new, or does it often occur?

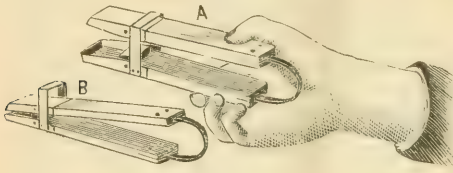
C. W. COSTELLOW.

Waterboro, Me., July 3, 1889.

In the experiments made with plates for foundation, some years ago, considerable foundation was made with the cells square; and reports were made through the journals that the bees used it just as well as six-sided foundation. As, however, nothing was gained, but something lost, the idea was dropped.

A NOVEL BEE-CATCHER.

Herewith I send you a sample of my bee-catcher. Well, who has got it patented? If by any possibility nobody has, then, if you wish to, you are at liberty to make and supply all demands.



ANDRUS' BEE-CATCHER.

It is convenient for picking bees off the windows and turning them outdoors, or, better, putting them in a box like the one in which this is packed, and then step to the door and let them out. Take the ends *only* off the box, and pull out the catcher.

Almont, Mich., May 19, 1889. J. H. ANDRUS.

The bee-catcher sent by friend A. is a very ingenious and pretty little machine; but I think very likely they will prove to be more convenient for the women folks than for a genuine bee-keeper himself. They might serve very usefully, not only in getting bees off the windows, but for picking up and removing any bug, worm, or spider that might invade the home.

HONEY FROM TOBACCO.

In GLEANINGS for July 1st are some comments upon bitter honey. I wonder if you ever stumbled upon honey gathered from a tobacco-patch, when other sources were lacking—perfectly clear, decidedly bitter, genuine to a T. This may have been the cause of much of the bitterness alluded to in your journal. I notice the bees prefer to gather water from the outlet of a certain tile, although there are many other outlets *never* visited. I wonder if they distinguish any chemical properties from this percolating through certain strata.

Assumption, Ill., July 12, 1889. W. N. ROOT.

OLD COMBS IN SECTIONS.

As you ask for testimony from experience, I will say I have used sections filled with comb, for the past 8 years, and I can not get enough of them. I always get the highest price paid in market for my honey, and we use a large amount at home; and while we object to foundation honey, we see no fault with old comb. If I use foundation at all it is only as starters. I usually raise my starters in the bee-hive, according to G. M. Doolittle's plan. Old comb should be entirely clean from old honey.

Grattan, Mich., July 8, 1889. A. P. COWAN.

THE T SUPER.

As I use a lot of T supers I will give my plan how to keep the sections down to their place, and at the same time protect them from propolis. I put T tins down from the top between the section rows; this is not new, but you know some of the sections will spring up—that is, they are not square. To keep the T tins down I lay $\frac{1}{4}$ -inch tacks, one on each end of the T tins, with the points toward the sides of super. With one-hand I press the T's down, and with an iron or an eight-inch file I press the tacks in the wood, which keeps the T tins down.

La Paz, Ind. C. A. BUNCH.

The same idea has been suggested before.

REPORTS ENCOURAGING.

PROSPECTS GOOD.

THE prospect for a crop of honey during the next three months is very good. I have 170 hives, about one-half one story, and weak at that, as the bees do not gather honey much in June, and about June 1st they kill their drones, and the queen sometimes stops laying. This year they gave us a few eggs all the time, but did not lay more than half their usual amount. I have just finished extracting 170 gallons of choice honey, and the prospect is good for 15 tons extracted and 2 tons comb honey this year.

G. W. CAMP.

Armona, Cal., July 10, 1889.

I took from two colonies last summer nearly 300 pounds of honey. Around here, if they get 10 pounds they think they are doing well.

Marshalls Creek, Pa.

J. GILBERT.

BOOMING.

Bees are just booming at this date. I wintered 14 colonies in your one-story chaff hives. They began swarming May 5th, and increased to 31 by June 28th. Bees in this section have had a great swarming mania this season.

F. W. LAMM.

Somerville, O., July 15, 1889.

"HONEY UP TO OUR CHINS."

The wax-extractor is just rolling out the yellow stuff. The strainer is "boss," and our "other half" says, "Bless Mr. Root;" and whoever saw a better smoker? We are in honey up to our chins. I will ship you some beeswax soon.

D. H. TWEEDY.

Smithfield, Ohio, July 13, 1889.

HONEY FLOWS LIKE WATER.

I am rushed to death. Honey flows like water. I have taken off 2000 lbs. of white-clover honey. I have 75 swarms now. I had 15 swarms to-day. If I did not understand some of the habits of bees I should get clogged up; but so far every thing is lovely, and every bee doing his level best. Basswood is not yet open. When it opens I shall have eave-troughs on.

E. A. MORGAN.

Chippewa Falls, Wis., July 3, 1889.

A BIG YIELD; 200 LBS. PER DAY FROM 25 COLONIES.

I suppose you begin to think my orders are coming thick and fast. If you were in my place you would not wonder at it. My bees are gathering in something like 200 lbs. of honey per day, and part of them are out of storage room, and building comb on the outside of their hives. I never saw such a honey season. I started in with 25 good colonies and 3 very poor ones; I had 58 supers filled with sections and starters, and have 62 very strong colonies now. We had some heavy rains, which insures a good fall crop of honey.

J. A. MAXFIELD.

Saxon, Ills., July 15, 1889.

REPORTS DISCOURAGING.

LITTLE SWARMING OR SURPLUS.

I had 31 colonies, spring count; very little swarming; and as to honey—well, I have not enough to supply my table. Except one hive there is not 10 pounds of surplus on hives; i. e., on all, old and new.

G. F. AYRES.

Atherton, Ind., July 5, 1889.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 137.—*a. Do you practice clipping queens' wings? b. If so, do you do it because it saves trouble in hiving the swarms, or because it prevents absconding, or both?*

No. H. R. BOARDMAN.

a. I do not. RAMBLER.

a. Yes; b. Both. GEO. GRIMM.

a. Yes; b. Both. A. E. MANUM.

a. Yes; b. Both. A. J. COOK.

a. Yes; b. Both. S. I. FREEBORN.

a. Yes; b. To prevent absconding. P. H. ELWOOD.

a. Yes, invariably. b. For both reasons. P. L. VIALLO.

I practice nothing of that sort, and am not troubled much with swarming. C. F. MUTH.

No; we never clip wings. We tried it, and got disgusted after two seasons. DADANT & SON.

a. Yes. b. To prevent absconding. I very rarely hive a swarm, as, three days out of four, no one is present in the apiary. C. C. MILLER.

a. No. b. I found more trouble in taking care of my swarms when the queens' wings were clipped than when they are not. It might be different, however, in less favored localities for hiving swarms. JAMES HEDDON.

a. Yes. b. For both these reasons; but they are only secondary ones with me, as I have too little natural swarming to require any special attention to that subject. By clipping her wing we keep track of the queen, which allows us to practice certain methods of management on a certainty, instead of by guesswork. O. O. POPPLETON.

a. Yes, and it pays well. b. It does both if properly done. Four years ago my best colony swarmed, and left without clustering. One of the queen's wings was clipped, but not short enough to prevent flying slowly; but they went over a piece of woods filled with undergrowth, so we could not follow them, and I lost them. A. B. MASON.

Principally because it saves trouble in hiving swarms. I do not know that I ever had a swarm abscond, even when my queens' wings were not clipped, and I never knew more than one to make any great effort to do so. Several important advantages are gained by clipping queens' wings, in comparison with which I think the disadvantages hardly worth mentioning. J. A. GREEN.

a. We clip all our queens' wings. b. We do it to make sure that no swarms go off in our absence. We have no one to look after the swarms or care for the bees in any way when we are not there. Our visits to each yard, during the swarming and extracting season, are from a week to ten days apart. Very seldom do swarms come out while we are away. We make all our increase by division of the old colonies. E. FRANCE.

a. Yes. b. Both, and more especially because the queen is so much more easily found, if she has the larger part of all of her wings off, as I always cut them. In strengthening weak colonies, and in many other operations in the apiary, it is often necessary to find the queen; and any thing which facilitates our finding her, helps just so much in our work. G. M. DOOLITTLE.

a. I have, the past two years. b. I seldom if ever have absconding bees here, perhaps mainly because there is no cave or trees to enter, and I sometimes wonder if they are not somehow held back by the great throng of bees at home. I clip wings to help control swarming. I am not positive yet that I shall always keep it up for that purpose, and to enable me to know my old from my young queens when I wish to displace old ones. R. WILKIN.

I do not. I have never been troubled by bees absconding, or "going to the woods." My experience, extending through many years and many hundreds of swarms, leads me to believe that first, or prime swarms, invariably cluster, after leaving the hive, and that in cases reported of prime swarms leaving without clustering, they had been out before on some previous day, or even the same day, clustered, and, being unobserved, returned to the hive on a second swarming. Such swarms will frequently leave without clustering. MRS. L. HARRISON.

I am an anti-clipper, largely because I greatly dislike to have swarms enter other colonies, as they will do when compelled to come back by the absence of their queen. Clipping has no effect upon that abnormal disposition to swarm known as swarm-fever, unless it be to make it worse; and the great host of second swarms, and thirds and fourths, of course have virgin queens that must not be clipped. In apiaries, where swarming is usually moderate, clipping is a practical method, no doubt. E. E. HASTY.

Most of the respondents practice clipping queens' wings, both because it saves trouble in hiving swarms, and because it prevents absconding. James Heddon, Dadant & Son, H. R. Boardman, Rambler, Mrs. L. Harrison, and E. Hasty, are anti-clippers, in the words of friend Hasty. For those who produce extracted honey, and, as a matter of course, keep strong colonies, clipping queens' wings is not so necessary, as very few swarms, comparatively, will issue. But E. France does so because it makes a sure thing of the swarm. With the Dove-tailed hive, we have lately been putting an ordinary queen-excluding honey-board between the bottom-board and the brood-chamber. Unlike the ordinary drone-excluders or queen-traps attached to the entrance itself, it causes no obstruction to the bees passing in and out. While it prevents the bees from absconding with the queen, it also keeps the queen in the hive, with no danger of her being lost. Of course, if the bees should make two or three attempts to swarm in the absence of the apiarist, and fail, they might kill the queen; but this they would not do with a clipped queen, even without the perforated zinc. Those who have a bottom-board with a bee-space formed by a rim around the outside edges, except at the entrance, can use their queen-excluding honey-boards in the way describ-

ed. Perforated metal in front of the entrance will answer the purpose of clipping; but on account of the drones, and the general hindrance of a limited number of holes for the bees to pass, it makes considerable obstruction at the entrance. A perforated honey-board placed directly under the brood-frames is about as perfect as any thing we have ever tried, and it does the business too. In the basswood orchard we have restrained a number of queens in that way.

QUESTION 138.—*a. If you practice clipping, are you not sometimes troubled by queens getting lost in the grass? b. Do you estimate that such loss is counterbalanced by an occasional absconding swarm with an unclipped queen?*

a. No. GEO. GRIMM.

a. Yes; b. Yes, and more. S. I. FREEBORN.

I do not practice clipping. MRS. L. HARRISON.

a. Yes. b. Yes, many times over C. C. MILLER.

I have never had any experience in clipping queens. H. R. BOARDMAN.

I should prefer to lose a swarm occasionally to clipping the wings of queens. C. F. MUTH.

Having clipped but very few queens, I do not remember to have ever lost one in that way.

E. E. HASTY.

a. Yes. b. We have so few swarms abscond that it is hardly worth considering as a factor against us. JAMES HEDDON.

a. No; b. I have practiced this clipping for 20 years, and there has been no loss to counterbalance. A. J. COOK.

a. Seldom. b. Losses from both of these causes have been too small with me to need taking into account. O. O. POPPLETON.

a. Yes, occasionally, when too careless. b. Yes, especially now that queens can be bought so cheap all over the country. PAUL L. VIALON.

a. Yes, especially when we get behind in our work. b. We lose very few, and the loss is not to be compared to loss of swarms. P. H. ELWOOD.

a. There is no grass in my apiary for queens to get lost in. I should not anticipate much trouble if there were. d. Yes. J. A. GREEN.

a. I suppose I do not lose one queen in thirty at swarming; but I reckon myself as more skilled in finding queens than in any other part of my business. R. WILKIN.

a. No. What on earth do you suppose I want grass around for—that is, tall enough for that purpose? One of friend Root's 12-inch \$4.30 lawn-mowers does away with that nuisance, and makes "fings look beautiful" in the apiary. A. B. MASON.

a. No, not when the attendant attends to business. b. Yes, as the loss of a queen at swarming time is of but little value, compared with a swarm of bees, as queens and queen-cells are plentiful at this season, or ought to be, in every well-managed apiary. A. E. MANUM.

I formerly clipped all queens' wings; but in swarming, unless the apiarist was looking at the yard all the time, queens were liable to get lost. If an apiary is run in a common-sense manner, there

is no swarming to contend with, and no loss of queens. The Rambler has had but one swarm in the past three years, and that swarm came from somewhere else. RAMBLER.

a. No, I have lost but one queen in this way in an experience covering a period of 19 years. If you do not allow the grass to get tall, and no apiarist should so allow, there should be no trouble in finding queens. b. I have lost only the one queen as spoken of above, and not a single swarm by absconding, so I shall keep up the practice of clipping the wings of my queen, as I believe it is very profitable for me to do so. G. M. DOOLITTLE.

We do sometimes lose a queen when swarms come out in our absence; but we lose but very few in that way. I would rather lose 20 queens than one swarm during our swarming season. The loss of a swarm is the loss of the honey that they would have gathered, but the loss of a queen at that time is no loss at all, as the eggs laid now would not be hatched in time to gather any of our surplus honey. Our surplus-honey season closes with the basswood. If a queen is lost during our honey harvest, the bees have plenty of time to raise another. We want our workers all hatched before the middle of June. From the middle of June to July 15 I would rather not have any brood to feed, and we often cage queens to prevent raising brood at this time, as our honey harvest is short and we want to make the most of it. E. FRANCE.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

HOW TO BURN SULPHUR.

The best way to burn sulphur is to melt it over a fire and dip strips of muslin in it. The muslin will burn like a tallow candle, and burn all the sulphur it will take up. Make a trial and satisfy yourself.

Souderton, Pa., June 18, 1889. M. B. BERGEY.

THE BEST LOCALITY FOR HONEY.

What portion of the United States do you consider best for the abode of a bee-keeper, every thing considered? A. M. DOTY.

Kansas City, Mo., July 12, 1889.

[Southern California and Southwestern Wisconsin are as good as any. All the Northern are good honey States. As to your own State, you *might* not better yourself if you moved.]

HOW TO SILENCE THE BOGUS-HONEY STORIES.

I see a great deal in GLEANINGS about adulterated honey. Now, there are some right here who believe that honey and comb can be manufactured. I argue by the hour some days, and tell them you will give them enough to get married if they can prove it. J. G. EARL.

Arden, N. Y., July 8, 1889.

THE QUEEN-EXCLUDING HONEY-BOARDS DO THE BUSINESS.

The No. 1 honey-boards, 15 x 17½, are the finest thing for raising extracted honey I have ever seen. I used the fifty I had of you in May, and used full frames of comb in upper hive, and not any brood above in one of them. J. H. HAIGHT.

Brothertown, Wis., July 8, 1889.

ANOTHER ONE GONE.

Our good friend and bee-keeping brother J. Vandervort, of Laceyville, Pa., has lost his beloved wife after years of suffering. She died of consumption on the 12th inst. The blow is none the less because our friend was long prepared for it. Our hearty sympathy is extended to him in this sore affliction.

C. P. DADANT.

Hamilton, Ill., July 19, 1889.

SULPHUR FOR FUMIGATING.

Take a common iron pan; to every teacupful of sulphur put a tablespoonful of alcohol in the center. The sulphur must be thoroughly dry. It can not be too dry to burn up clean. Damp sulphur will not burn well, and will run. It is not necessary to have a great draft. It will burn with a little draft.

M. H. MENDLESON.

Ventura, Cal., July 3, 1889.

STINGLESS BEES.

Have you ever seen any stingless bees? Gov. B. F. Flanders, while in Mexico, saw several hundred hives (the hives being merely hollow logs piled one on the other, pyramid shape), and the bees were stingless.

A. L. REDDEN.

New Orleans, La., June 29, 1889.

[We have never seen any stingless bees, friend R.; but our correspondents have before mentioned the fact that they were pretty common in Mexico. They are of little practical value, however. The amount of honey they gather is insignificant. Like some human beings in a warm climate they live only from hand to mouth. A Mr. Grouen, writing from Brazil to one of the German bee-journals, speaks of 18 kinds of bees, the greater part of which are stingless.]

SWARMING OUT AND TAKING THE HONEY WITH THEM.

We had a swarm of bees that came out the 26th of June. We hived them, and they went right to work carrying honey from the hive they came from into their own, and kept it up two or three days. Now they are all right.

W. BURGESS.

Kansasville, Wis.

[What you mention, friend B., is very singular, although I believe that such things have been recorded once or twice before—a new swarm going back to the parent hive and carrying off its supplies. It has happened, I believe, however, only when there was a dearth of honey after the swarm goes out. If that state of affairs should continue, of course the parent hive would be likely to starve. When the honey-flow commences again, this borrowing from the old folks ceases.]

SPIDER PLANT, ETC.

Do you still find spider plant as productive as indicated in the A B C of Bee Culture? The cut illustrating the surprise of Novice, eld Sol, and the bees, presents an amusing tableau. What plants are best adapted to rather light sandy loam soil? What of the Simpson honey-plant? J. H. HOAG.

Waterford Works, N. J., July 2, 1889.

[We still find the spider plant as productive as mentioned in the A B C, providing it is on very rich ground, and has good cultivation. Such ground, however, if put into strawberries, would give a yield of 100 bushels or more per acre; and so far the 100 bushels of strawberries has proven to be much more profitable than the honey from the spider plant. With the latter, however, the bees gather the crop without expense. With the strawberries you have to have a swarm of boys and girls.]

MINERAL WAX.

I was very much surprised to see your inquiry about mineral wax in GLEANINGS. Near Boryslaw, Galicia, 50,000 hundredweight of ceresin is dug out every year. It is called, when raw, ozokerit; after

being refined, crosin, ozo-cerotin, or ceresin. Wax is taken from *Myrica cerifera* and *Myrica Carolinensis*, etc. There are about six different kinds of vegetable wax. It would make a long and interesting article for GLEANINGS.

PAUL PEINE.

Martinsburgh, W. Va., July 22, 1889.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture, or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

G. C., Connecticut.—If your bees are lying out, smoke them in and give them a little more room, adding a super, if they have not one already. Sometimes it may be advisable to lift the cover up a little temporarily, to give the bees a little more ventilation.

TO GET RID OF ANTS AMONG THE HIVES.

J. K., Missouri.—To keep black ants out of the hive, get rid of the ant-hills in the immediate vicinity by pouring on them coal oil. Mr. A. E. Manum recommends putting pieces of tarred paper on top of the brood-frames.

TO MAKE SWARMS STAY AT HOME.

R. A. T., N. Y.—We can not discover anywhere in your letter that you have taken the precaution to put in a frame of unsealed brood into the hive where you put your new swarm. If you are troubled by the swarm leaving, try the unsealed brood, and you will be surprised to see what an effect it has in holding them. It is not infallible, but it exercises quite a stay-at-home effect on the bees.

J. W. M., Pennsylvania.—We have seen chilled brood that looked in every way like foul brood, with the exception of the dark-brown color and the ropiness. We should rather incline to the opinion that your bees are affected with chilled brood were it not for the fact that you say it is spreading. Taking it all in all, we should say it is foul brood. To further assist you, please read the article, "Foul Brood," in the A B C book which we send you.

A. Y. B., Illinois.—The latest edition of our A B C of Bee Culture gives very full directions how to get bees into the sections. A recent article from G. M. Doolittle recommends placing a small piece of drone brood in the surplus apartment. Bees will not enter the sections unless honey is coming in at a pretty good rate. The colony should be strong. When we say "strong" we mean 6 or 8 pounds of bees. There should be so many they can hardly be accommodated in a single story.

A SPECIMEN OF FOUL BROOD.

J. W. M., Pennsylvania.—Your sample of brood came to hand. After carefully examining it we can not be sure even now that you have real foul brood. The odor from it is more distinct and penetrating than that from the disease which we have had. It can scarcely be called ropy, yet it has somewhat of this characteristic. As you say it is spread-

ing, it is quite likely you have foul brood. We should be glad to have you keep us posted in regard to it. If there is some disease which is very similar, or akin to the disease which we have had, we should like to know it.

DRONE CELLS FROM WORKER FOUNDATION.

A. W. G., Wisconsin.—Bees will seldom work worker foundation out into drone comb. Sometimes, when the foundation is not wired, it sags, and the cells elongate, and the result is drone-cells, or at least the same are sometimes filled with drone brood. If the foundation is wired, and there is a young queen in the hive, you will not get a single cell of drone brood; in fact, you will rarely get drone comb out of worker foundation under any circumstances.

SWARMING AS A RESULT OF A SURPLUS OF CELLS.

C. F. S., Massachusetts.—The reason your bees swarmed is because you allowed them to build queen-cells. Immediately after the issue of the first swarm you should have examined the parent colony, and pulled out all the queen-cells but one. As long as there is a surplus of young queens or cells, so long, probably, will you have swarming. If they still continue to swarm, give them a young laying queen, and they will be likely to settle down to business. The latest edition of our A B C book will give you further hints on this point. Please read "Swarming and its Prevention."

CAN THE PURITY OF AN ITALIAN QUEEN BE DETERMINED BY HER LOOKS?

C. M. H., Wisconsin.—The queen and your letter came to hand. Allow us to correct the wrong impression that you have. Pure Italian queens vary in color, all the way from black to a bright golden yellow. In fact, the Italian queens are the most variable in color, stripes or no stripes, of any race of queens. It is utterly impossible to say from looks of a queen whether she is Italian, hybrid, or black. Her purity must be judged entirely by her progeny—the number of their yellow bands, their disposition, etc. The other colony which you speak of, which were first Italian, and then turned out to be blacks, probably lost its Italian queen, and the hybrid was reared in its stead.

J. L. U., Mississippi.—The Golden bee-hive is a swindle, and the vendors of the same are rascals. The less you or anybody else has to do with them, the better. You can make any hive you please, and they have no right to interfere. If they threaten you with suit, tell them to come on. They will do nothing but talk. Their hive is virtually the Langstroth hive, as Prof. Cook says, and this hive is the property of the world. The Golden bee-hive people may possibly have a patent on some insignificant feature of the hive, but that need not trouble you. If they are going to enter suit so fast, tell them to sue A. I. Root. He is one of the biggest infringers on their alleged patent, and we do not care if you show them this letter. We have published the Golden bee-hive as a swindle for years. They work only in localities where the people are ignorant of modern apiculture.

HOW TO ITALIANIZE ECONOMICALLY.

O. B., Kentucky.—The best way to Italianize is to purchase three or four untested queens of some reliable breeder, if you want to do it with as little money as possible. After these have produced a

lot of Italians, are populous and strong, give to each of the queens a frame of drone brood; cause as much Italian drone brood to be raised as possible. In the meantime, keep all black-drone brood shaved down. If you have any black drones flying in the air, trap them with perforated zinc. After you have raised a lot of Italian drones, start raising young queens from your tested Italians. These will probably be fertilized by the Italian drones. If your neighbors have black bees in box hives, put perforated zinc successively in front of each hive until you have trapped out all the flying drones. Your neighbors will not object if you tell them what you wish to do. We can not very well send you drones by the pound; but you can rear them in the way stated above—enough so to make quite a decided showing of pure Italian queens from those you raise.

FOUNDATION IN HIVES SET UP; GLASS IN THE SIDE OR ENDS OF HIVES.

L., Pennsylvania.—We do not furnish foundation for the brood-nest of our regular hives set up, unless it is specially ordered. Foundation is a great convenience, and prevents the comb from being built irregularly; but as it is not absolutely necessary, we do not send it out. In regard to the arrangement of your hives, we would not advise you to put them upon benches. Put them on a nice clean place directly on the ground. Very few good bee-keepers recommend having the bees raised up from the ground. To put glass on the sides of all the hives so that you can see what the bees are doing would make a big bill of expense. The glass would break in shipping, and we can not see that it would be of any particular advantage. If you get more good colonies, we think you will agree with us that we don't want any glass at the sides or ends of a hive. The best way to examine a hive is to open it and pull out the combs. To watch the bees to the best advantage, get an observatory hive.

HOW TO MAKE A COLD-BLAST SMOKER CONQUER.

J. E., New York.—We do not make any smoker hot blast. If you will use excelsior and sawdust mixed, or even planer shavings mixed with a little sawdust, pack them solid in the fire-box, make a little ventilating hole with a lead-pencil or other instrument through to the grate, ignite with a match, and get well a going, you will have a volume of smoke that is equal to any hot-blast smoker. When we have filled the smoker in this way we have sometimes wished, on account of the abundance of smoke, that there was no such thing as a smoker around the bees. Yes, we have even had to drop the smoker and step a little distance away and get a chance to breathe. The great secret of making shavings and pine sawdust burn is so make a draft-hole right through its center, after packing it solid. As it burns, this hole continually enlarges. Another point: Suppose you have a hybrid colony to handle. They are very cross, and you want an extra amount of smoke. Fill the smoker as before directed; place your thumb over the end of the smoker, closing the nozzle. Work the bellows until the fuel of the fire-box is ablaze, and the flame shoots out at the rear end of the smoker. Now then: Turn on your hybrids; and if you can not conquer them, smoke will not do it. You may think you would burn yourself to close the orifice to the smoker with your thumb, but you will not.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO
STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

THE UNION IN TOBACCO.

Come, one and all, and hear me tell
How those who smoke can ne'er do well;
They smoke that they may taste and smell,
And for tobacco they will sell
Their rights to social union,
Their rights to social union.

They clean their pipestems with a wire,
Then fill the bowl and stick in fire,
And smoke till it doth quite expire;
Nor do they ever seem to tire
Of this tobacco union,
Of this tobacco union.

Sometimes from two to ten you see
Collected in one company,
And all agreeing in high glee,
To have a jolly smoking-speech,
A jolly smoking union,
A jolly smoking union.

And as they smoke the fumes arise
Like morning mists beneath the skies;
Then woe to him who bath weak eyes,
Unless he gets him up and hies
Away from such a union,
Away from such a union.

Some folks there are who smoke and chew,
Tho' oftentimes it makes them spew,
Makes them drunk as a tippler too,
And still the habit they pursue,
And boast of social union,
And boast of social union.

Sometimes about their neighbor's door
They cast their quids—two, three, or four,
And spit upon the hearth or floor,
Perhaps a pint, or less or more,
And talk of social union,
And talk of social union.

Sometimes within the church you view,
Some persons there will sit and chew,
And spit upon the floor or pew,
Until it spreads a foot or two,
And sing of heavenly union,
And sing of heavenly union.

The quids are oft so large within,
The juice runs out and stains the chin;
And then I always have to grin,
And think there is no little sin
In this tobacco union,
In this tobacco union.

Willow Springs, Mo.

J. S. H. BLACK.

Please send a smoker to my friend M. E. Dickson, of Days, Desoto Co., Miss., who has resolved to quit the use of tobacco. If he commences again I will send you the price of the smoker.

Horn Lake, Miss.

JAMES R. ELMORE.

Please send a smoker to Mrs. S. A. Eley, for she has taken the pledge to quit the use of tobacco; and if she uses the weed again I will see that you get your money.

J. W. TAYLOR.

Hickory Creek, Ark.

I have a young friend who is slightly interested in bees. I have been loaning him GLEANINGS to read. We have lots of talk. I induced him to quit the use of tobacco. He has seen your offer as a pledge, and has requested me to write for it. If he ever breaks his pledge I will send you \$1.00 for the smoker. His address is Jno. T. Dedmon, Navasota, Tex.

W. W. SOMERFORD.

In the May issue of GLEANINGS I notice in your Tobacco Column you offer a smoker to any one who stops using the weed. In case this entitles me to your offer I stand ready to contract with you under the conditions in GLEANINGS. As I have a few colonies of bees I hope to profit by them through your liberal offer of the smoker, and through your journal; and lastly, but not least, quit smoking.

Maple Creek, Neb.

J. H. KLINE.

In your Tobacco Column you state the conditions under which you give away smokers. I read in GLEANINGS how that cancers and other diseases are caused by the use of tobacco. New Year's day, 1888, I thought I would stop the use of the cursed plant. I have abstained from the use of it ever since; and feeling no desire to return to its use, I feel confident that I shall not have to pay for the smoker in the future. You may take my name and use it to the best advantage, as it may be instrumental in inducing others to quit.

Burlington, N. J.

SHERMAN BORDEN.

How thankful I am that there are so many dropping off the filthy habit of using tobacco! and I am glad in my heart that I belong to that little band, after using tobacco ever since I was 13 or 14 years of age (I am now 42). I have read GLEANINGS for some time, and have been a subscriber since January last. I read many good pieces before I came to the conclusion that it was a filthy habit; and seeing that some had used the weed longer than myself, and had given it up, I said to myself, "Why can't I?" So I thought to myself, "I will try, but not in my own strength alone, but ask the good Lord to help me, and take away the appetite;" and I feel to thank him for what he has done for me in this one thing alone, with all the other blessings that come from his bountiful hand. I feel that I owe some of it to you and GLEANINGS. So let others take warning, and don't say, "I can't quit," for that is a mistake; for I have said the same. Undertake it, and ask the good Lord to help and strengthen you, and give you grace to overcome the evil, if it is one, and I believe it is. Now, friend Root, if I am worthy of a smoker, send me one, as I quit tobacco in all forms seven weeks ago; and if I ever take to it again I will pay you for the smoker. I don't want to be hired, or any thing of the kind; but it is to keep me in mind of my pledge. But I have no desire for the weed now, and am determined not to touch it again.

N. J. MCADAMS,

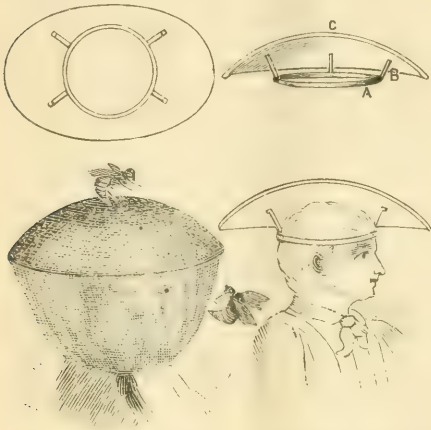
Western, Neb.

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

THE HOPATCONG; A NEW HAT FOR THE APIARY.

A MONTH or so ago, one of our engravers (who by the way is interested in bees), seeing a peculiar kind of hat in one of the shop windows in Cleveland, sent a rough pen-drawing of the same, with a note, asking if such a hat would not be very cool and desirable for a bee-keeper. Upon receipt of this I wrote him, asking him to have one sent, that we might try it. After testing it a couple of weeks in the apiary, during some of our hottest weather, I requested him to make an engraving of it, showing it in different views. This he has done, and I append the result below.



A NOVEL BEE-HAT, ALIAS THE HOPAT-
CONG.

The engraving is so complete as to make a detailed explanation almost unnecessary. You will observe that the hat is supported by a light rim, an inch or so above the crown of the head. Its special feature is the perfect access of light breezes to all parts of the head. An ordinary hat, it should be observed, incloses the top of the head in a tight box, as it were, leaving very little opportunity for the escape of the heat formed by the rays of the sun on the top of the hat, and heat formed by radiation from the crown of the head. The result is that most hats in the hot sun, while they ward off the direct rays of the sun, do not leave sufficient ventilation around the crown of the head. This Hopatcong is very airy; and in practice, I can confidently say, is about as cool a sun-shade as I ever wore. I liked the light cloth hat we advertised, but it was hardly sufficient protection from the sun, although it allowed the breeze to circulate through the light fabric of the crown. I have exchanged hats with different persons, and the verdict is always that the Hopatcong is the coolest hat they ever wore. It is the same sort of hat that we see represented in pictures of scenes in China and In-

dia. Although not a very handsome head protection, it is extremely comfortable; and if the natives of India and China use this hat to any great extent, they have more respect for comfort than some of their more civilized neighbors.

There are two objections to the Hopatcong. While it projects far enough forward and back to properly shade the face and neck, it is hardly wide enough to give sufficient protection to the sides of the neck, as the diagram at the upper left-hand corner will show. Again, it is rather too expensive to be adopted very generally. The one that I wore cost \$2.00 at retail, and I have not yet learned where they can be obtained for less money. I understand that they are being used to some extent in the Southern States, and that they are retailed at a dollar apiece. They can certainly be made for less money; and as soon as the people who are necessarily obliged to work in the hot sun know of their comfort, they will be adopted more generally, in spite of their oddity, I think. Now, please do not send in orders to us for these hats—at least for the present. I am quite sure that you can get them in most cities, and your local retail dealer in hats and caps ought to be able to procure you one if you wish.

A VERY GOOD SUBSTITUTE FOR THE HOPATCONG.

Just after I had gotten the Hopatcong, our Mr. Spafford, who is in the apiary constantly, struck upon an idea which I think is certainly worthy of being given to beekeepers at large. It is this: He purchased an ordinary palm-leaf hat, but one or two sizes too large for him. He then wet the hat so as to make it assume a conical shape, the same as shown on page 249, 1887, where Dr. Miller is seen emptying a T super of sections. He then took two corks, about $\frac{3}{4}$ of an inch in diameter. These he cut into halves longitudinally. These four halves were then sewn on the inside of the crown of the hat, equally distant from each other. When the hat is adjusted to the head it is supported from the head by means of these four corks. In other words, the hat itself—at least that part which would ordinarily come in contact with the head—is kept $\frac{3}{4}$ of an inch away. This leaves quite a good opportunity for the circulation of air around the head. Mr. Spafford and I often traded hats, and I have been surprised to note that his hat was nearly as cool as the Hopatcong, and his did not cost more than about an eighth as much as mine. It had this additional advantage, that the drooping rim thoroughly shaded the head and neck on each side as well as before and back. While all the breeze would not circulate over the crown quite so freely as in the Hopatcong, yet it was decidedly cooler than the ordinary straw hat, where the rim fits closely around the head. On some accounts I should prefer it to the Hopatcong. Now, may I suggest that Dr. Miller take his bee-keeping hat, or, rather, get one a size larger than he ordinarily wears, if he can, and adjust the little pieces of cork in such a way as to keep the hat away from the sweaty head? If he does not think it is a great im-

provement over his old hat, then I will send him my Hopatcong all the way to Marengo, free of charge.

Oh! by the way, as I was wearing the Hopatcong constantly, I very thoughtlessly, on my way to the basswood orchard, one day went through the streets of our village with this odd-looking head protection. I could not quite imagine why everybody was staring at me; nor could I guess, when I got back further into Hoosierdom, why the farmers would constantly look at me. Then I reflected that it was my Hopatcong. Well, I consoled myself with the feeling that I was not considering looks but comfort. I mention this incident to show you that it is an odd-looking hat, and if you wear one you must not be surprised if you are stared at by visitors.

THE CANADIAN HELMET.

While on the subject of hats I may mention the Canadian helmet—such a hat as is worn by bicyclists and others, made on the same principle as the Hopatcong, as above illustrated; and if they only afforded a better shade they would be as cool. I have myself worn one during one season; and my brother-in-law, Mr. Calvert, wears one every day (he is a Canuck, you know). As years go by, I begin to see these hats more frequently on the streets. When I visited D. A. Jones, he insisted that I should wear one of his helmets, which I did under protest; but I very soon learned to like it; and after I came home I seized the first opportunity to get one.

SWARMING AT THE HOME OF THE HONEY-BEES.

Very soon after the last issue was mailed, swarming began to "let up," and we had only about one swarm a day. We now have none at all. I am satisfied now that our excessive swarming was largely if not entirely due to the number of old queens in the apiary, some being three years old. This apiary, on account of foul brood during last year and the year before, has not been used for filling orders, consequently this year almost all the queens are old.

HOW MANY BEES IN A POUND?

A short time ago a prominent pharmaceutical concern in the city of New York gave us an order for 1000 bee-stings. Perhaps I should explain here, that from bee-stings a medicine is prepared called *apis melifica*. This medicine is used only by homeopathic physicians, who give it to patients in cases of swellings, skin ruptures, etc. To return: Stings can not be extracted from the bees in any wholesale way. It must be done one by one, and with suitable tweezers. Our method of procedure was as follows: A frame of bees was put in a comb-holder, just before the window. Our Mr. Spafford took a pair of tweezers and grasped the bee by the thorax. A slight pressure caused the bee to protrude its sting a trifle. Another pair of fine tweezers grasped the sting and pulled it out. A cruel operation, you say. Yes, but the bee was crushed immediately after the removal of the sting, by the tweezers holding the thorax. There was no other

way than to count each individual sting as it was pulled out and dropped into a receptacle to receive it. In the tray, after the whole job was completed, we had 1000 stingless bees. These bees were placed on some very delicate scales, and weighed. As nearly as we could get at it, 1000 bees weighed $2\frac{1}{4}$ ounces, minus their stings; but as the sting itself is such an exceedingly small instrument—much smaller and more delicate than the point of the finest cambric needle, and very much lighter, it would not play any very great part in the weight of the bee. However, it would be fair to suppose that 1000 stings might weigh $\frac{1}{2}$ of an ounce—not more, I think. These bees, at the time of killing, had very little honey in their honey-sacs—about as much as bees usually have when sold by the pound. In round numbers, then, 1000 bees will weigh three ounces. At this rate a pound will contain just exactly 5333. If the bees have very much honey in their sacs, this number would be reduced to something like an even 5000, or perhaps a little less; so it is fair to suppose, under ordinary circumstances, if my estimate was correct, that a pound of bees would contain, on an average, about 5000 bees. For several years back we have said in our price list, "As nearly as we can make out, there are 4000 bees in a pound." In our next edition we will put it 5000, unless somebody makes out that I have made a mistake. I should like to have some one else experiment and see if my figures are correct. There is no practical bearing as to how many bees there are in a pound; but it is interesting to know, when we are talking about the numerical strength of a colony, how many thousand bees there should be in a hive to be able to take advantage of a honey-flow. Some colonies of bees contain 8 pounds, and some even 10; the average working colonies, not much over 5 pounds. The number of bees in a colony might range, then, all the way from 5000 up to 50,000. Now, will not somebody be kind enough to weigh the bee's load, and tell us how many grains or ounces of nectar 1000 bees can carry?

Since writing the foregoing, I discover on page 313 of Dadant's Revised Langstroth that a Frenchman, L'abbe Collin, has found, by careful experiment, that, in a normal condition, it takes about 5100 bees to make a pound. Considering the difference in bees and circumstances these figures are pretty close to mine. He says again, while in a natural swarm supplied with honey it takes less than 4300 bees. Now, on the supposition that the latter figure is correct, how much does one bee-load weigh? Here is a chance for our young bee-keepers to use their arithmetic. Well, I will give my answer. One bee-load weighs in round numbers $\frac{25}{5100}$ of a pound; or, in other words, it takes 25,000 bees to carry a pound of honey. According to this it must take a tremendous big swarm, say 12 lbs. of bees (estimating 4300 to the pound), to carry on the wing with them even 2 lbs. of honey. It seems as though there must be a mistake somewhere, for an average swarm ought to be able to carry with them more than a pound of honey.

NOTES OF TRAVEL.

A. I. Root Among the Bee-Men of Illinois and Wisconsin.

WHAT HE SAW AND WHAT HE LEARNED.

IT is now 15 minutes of train time, on the afternoon of July 11, and myself and Blue Eyes are all ready for a trip. Mrs. Root decided that she could not go this time. My first point is Chicago, and thence to Dr. C. C. Miller's, Marengo, Ill. More anon.

July 11.—At Elyria we found the train two hours late, and so we found our way into a meeting of the Salvation Army. I felt that the spirit of Christ Jesus was there, in spite of their queer methods. The leader was a woman of middle age, evidently a hard-working woman; but the earnestness and zeal with which she prayed was hard to be resisted. The audience was few and scattering, but the melody of their simple hymns still lingers in my ear, and, I trust, in my heart also.

July 12.—This morning we saw the sun rise on the great grain-fields of the West—the wide acres where bread for the world is grown. How beautiful are the harvest-fields with their modern machinery! The village gardens, many of them, look shabby compared with neat, clean, orderly grain-fields.

July 13.—I have been getting an appetite for breakfast by helping friend Miller hoe out one of his little gardens of roses. You see, I am here a week before I expected to come, and so their plans of having the roses (and bees too) all in apple-pie order were rather upset. When I arrived the doctor was at the Wilson apiary; but his good wife sent me over, and I begged to go out among the bees and take them by surprise. The bees were making such a roaring, and the doctor's long hat came down over his face so much, I easily got up right by his side, unperceived. The hat is the one on the table in the picture (see GLEANINGS for 1887, p. 249). I watched him make his examination, but said nothing. Finally he very leisurely straightened himself up, but even then did not see me until he became conscious of a shadow near by; then he gradually tipped back his head until he could look over the apparition that had so noiselessly come close to him. For a brief second he seemed "sort o' dazed," and stared with open mouth in a way that seemed to say, "Well, who are you, and what do you want, and how came you here, any way?" until I really began to fear he wasn't going to be glad to see me; and then what a laugh we *did* have! Miss Emma was but a few feet away; but the roar of the bees, and the fascination of finding T supers with section after section filled and capped over with snowy-white cappings, held her spellbound until I went up and startled her too, by telling her I wanted to see the lady who is not ordinarily very much "stuck up."

Well, Dr. Miller has propolis enough in his apiaries so there is quite a chance to get stuck up, and therefore both of them were

clad accordingly. They didn't expect me for a week, and they were just "going for" the bees, in order to get the work ahead before I came. Some fire had dropped out of one of the cold-blast smokers, and burned a great hole in Emma's dress, and—then we all had another big laugh. She was just under one of her father's own apple-trees, close by her own home; and if she *wasn't* rigged to receive company, it was *my* fault and not hers. Had I knocked at the front door, and then sat in the parlor while she went in the back way and took half an hour to fix up—but I didn't, and I didn't feel bad about it either.

I just got one of the smokers and helped "make honey." I do wish the publishers of the cyclopedias could be with us so as to tell accurately just how honey is made. Dr. Miller controls swarming by caging the queen just before swarming time, and keeping her caged ten days. All queen-cells are carefully destroyed when the queen is caged, and when she is let out the bees are shaken from the combs, and a most *thorough* examination is again made for queen-cells. It is some work, but it does the business. As fast as the sections are capped, or nearly all capped, the T supers are stacked up over one of the hives until we get time to carry them away. As fast as one full T super is removed, an empty one takes its place. I tell you, the honey is coming in lively, and we are having fun for sure.

TAKING HONEY FROM THE HIVES.

Dr. Miller handles T supers only, and no sections are ever pushed out or sorted out in the apiary. When a T super has all the sections nicely capped but one or two, it is removed from the hive. They do not stop, however, to get *all* the bees out, but just drive most of them out with the smoker, and then they are laid up in tall piles over some hive of bees that stands in a convenient place. Here they are left until ready to be loaded up. Then one person stands on a hive or box, so as to hold a smoker easily over the pile, and drives the bees down, while another lifts them off. By this means the young bees left in the supers are all driven down in the hive under the pile, and none are lost. The old ones fly to their own hives if they want to. When all are hauled home, the sections are removed all at once, as we have already described—see page 249, 1887—and the unfinished ones are put in a super, to be put on some hive again.

I have before spoken of the doctor's plan of preventing swarming. Well, there is a sequel to this matter of caging queens for 10 days. When Dr. Miller told me the bees would start queen-cells where a queen is caged and laid between the top-bars, almost as soon as if the queen were removed entirely, I was incredulous. Years ago I found so many times that bees would not rear queen-cells when they had a caged queen in the hive, I had set it down as a settled fact; but right before us were hives by the hundred where the queens had been caged about ten days previously, and I was invited to look them over, and see whether there were queen-cells or not. I had to give up. In thinking the matter over afterward,

I discovered, I think, the reason why my bees built no queen-cells while they had a laying queen in the hive. The doctor commenced caging his queens just when swarming began. His colonies were also crammed with bees and crammed with honey. They were up to swarming pitch, as they have to be to work fairly in boxes. In my experiments, both honey and bees were kept out of the way by extracting and selling bees by the pound.

If no cells are destroyed until 11 days after the queen was caged, most colonies will, during a honey-flow, start a nice lot of cells, and on the 11th day these can be cut out, or, as often happens, you can pick them open and get live virgin queens to introduce to nuclei. We got half a dozen fine queens from one hive where the queen had been caged 11 days before. Dr. Miller keeps some laying queens constantly on hand in nuclei, for emergencies. These nuclei are simple L. hives, with a thin wood division-board in the middle. This division-board is made to stay absolutely tight, by slipping a strip of folded tin on *each end* and the *lower edge*. Now, instead of tacking this tin to the *division board*, it is tacked to the hive, therefore the board can be slid out or put back, and no bee can ever pass under or around the ends. Along the *top edge* of this division-board a quilt, or enamel sheet is *tacked*, so the loose sides will cover the nuclei. The entrances are, as usual, on the portico, only they are as far apart as they can be, while the two nuclei are as close up to the thin division-board as they can be, so as to make them virtually one cluster of bees, so far as saving the animal heat is concerned. I know this is all old, but the doctor uses such nuclei very successfully.

A DAY WITH E. FRANCE.

Friend F. has at present seven apiaries, and has extracted 24,000 lbs. of honey. He is somewhat eccentric, as original geniuses usually are. It is amusing to see how widely the *plans* differ among different bee-keepers. Dr. Miller works for comb honey only, therefore he has every thing adapted to it. When I first saw him work I criticised and found fault with a good many things; but when he gave me his reasons for so doing, and especially after I had worked with him one day, I became gradually quite a convert to his methods. Well, it has been so with friend France. The latter produces only extracted honey, and his out-apiaries and every thing else are specially adapted to it. First, he says he would rather have all black bees than either Italians or hybrids; next, he prefers a frame about 21 inches high by about 12 wide, and this frame stands on end. Lastly, he prefers tenement hives, tall enough to take this tall frame, *two stories high*. These hives are so tall and "tower" like, that his boys have christened them "shot-tower" hives. Each hive contains 72 of these great frames, and the outside is all chaff-packed. He has used them now four years, and says all the hives he makes for the future shall be these. He lets the bees have both upper and lower story for winter. He has, of course, rousing colonies, and has never lost a colony in wintering in them.

When he extracts a "shot-tower" he sometimes gets a *barrel* of honey. The bees (four colonies to each hive) have entrances on each of the four sides. Each colony has an upper and lower entrance. The upper one at the bottom of the upper frames. The bees work about equal at each entrance.

At Dr. Miller's I found they were using the cold-blast smoker. They were not using them because they expected me to come around there, for I came a week before I promised to. I laughed at them some about it, especially as they had before decided in favor of the Bingham smoker. They said, however, that, after trying first the largest Bingham smoker, then the Clark, and changing from one to the other repeatedly, they had at last settled down in favor of the cold-blast smoker. Please, dear friends, do not think that I mention this solely because I want to recommend the Clark smoker. We bee-keepers, the best of us, have not only lots of notions, but we also change about and get into habits. I am not sure but that Dr. Miller and his helper will eventually come back to the largest-sized Bingham again. At one place where I stopped, when I mentioned that the doctor had laid aside the Bingham and was using the cold-blast, they turned on me so vehemently, and abused the cheap Clark smoker so emphatically, that I was almost sorry I had said any thing about it. A higher-priced smoker *ought* to be better; and for very large apiaries, they will doubtless be considered better in the hands of many; but the cold-blast surely does very well for a moderate number of colonies. But some of the friends of the Bingham will hardly admit that Now, then, I am coming to a point. What do you suppose E. France, with his seven large apiaries, uses in the way of a smoker? I do not believe you could guess in a week? Well, it is the old-fashioned mouth-smoker, used by Doolittle, only a little bit modified. A block of wood, perhaps four or five inches long, has a hole bored in it, may be an inch and a half in diameter. Near the bottom a small tube is put through the side. The mouth is placed over the large opening, and the smoke is blown out through the small tube. Tobacco is used exclusively, and friend France buys a cheap grade of it by the wheelbarrow-load, if not by the wagon-load. A very little smoke from tobacco, of course, does a very large business with cross hybrids; and friend France has more cross hybrids than any other man in the State of Wisconsin, without question. I at once suggested that his boys would learn to use tobacco by having the mouth so near tobacco smoke. Imagine my surprise, then, when told by friend France that he never used tobacco in any shape. One of his boys admitted that he used tobacco, but he said he did not think that the tobacco smoker had any thing to do with it. This thing is certain, however: A young man who is breaking away from the bondage of tobacco would find it a pretty hard matter if he kept on using friend France's *tobacco smoker*.

When I first arrived I found a good deal of fault with friend France's plans, just as

I did with Dr. Miller's: but after two days of questioning, and practical experience with his hives and fixtures, I began to think that, for extracted honey exclusively, friend France might have decided on the very best arrangement, especially for out-apiaries as far away from home as his are. Those immense hives will hold all the honey safely, in case he should have trouble about getting around promptly. The bees never starve, for he winters them with the whole 36 large frames; and when they come to raising brood in the spring they never lack in stores. I am very much inclined to think these great hives have an amount of brood in spring, right along year after year, that we shall seldom get with small hives; and this is one reason why I am very loth to give up the ten-frame Langstroth and adopt the eight-frame. Dr. Miller has cut down all his hives to eight-frames; but he winters entirely in the cellar. Of course, friend France lets his great shot-tower hives stand right where they are placed, winter and summer; and he has no fussing to do from the time honey ceases in the fall until it commences again in the spring. Of course, he does not extract very closely in the fall, preferring to leave them too much rather than not enough. Now, dear reader, before going any further with my Notes by the Way, I want to ask you to read My Neighbors.

MYSELF AND MY NEIGHBORS.

Thou shalt not bear false witness against thy neighbor. Ex. 20: 16.

July 16.—While waiting for the train at Woodman I have just had one of the pleasantest visits of my trip. I found some bees belonging to an old gentleman between 80 and 90. While talking with him I noticed an old gray-haired grandma, standing in the back doorway. I wondered if it was likely she would care to talk with A. I. Root; but it has always taken a little effort on my part to make advances toward an acquaintance, even with old people, and I thought once I would not crowd myself into their home. Then the thought came, that, if it were Prof. Cook, he has such a gift that way, he would easily and naturally get acquainted and entertain her. I walked toward where she stood, and very soon her face broke into a smile as she asked if it were indeed true that A. I. Root had visited their home. She is a devoted Christian, and soon I had heard about her children and grandchildren, and especially about one son—the one who first started them with the bees. He succeeded with the bees, became a storekeeper and then postmaster, but finally left their little town of 30 or 40 inhabitants, and went west, where he is still prospering, for he is a God-fearing son.

"Grandma" insisted that I should go down into their cellar and see where "grandpa" did the work. The cellar was dry and clean—yes, cleaner and sweeter and nicer than most of the extracting-rooms I found among a good many bee-men. But I might say this and not say a great deal either; but

this underground extracting-room was a cool and pleasant place wherein to sit down and talk. During exceedingly hot weather I could imagine that it was a very nice place to work, and bees are not very much inclined to go down into a cellar. Before leaving, the old couple, with another son and his wife, with grandchildren, gathered under the trees in front of the little cottage. In my poor way I tried to strengthen their faith in the great Father, and also in their fellow-men. I gave them some suggestions on "what to do, and how to be happy while doing it."

When I got into the town of Woodman I was told I should have to stop three hours. There are only two bee-keepers there; but the landlord told me that six miles further on my road, at Boscobel, there were a great lot of them. Accordingly, after an hour's pleasant chat with the bee-keepers there, I employed a man to take me ahead to the next town, that I might waste no time. He hadn't the change for a five-dollar bill, so I went into a store. The storekeeper did not like to spare his change, but suggested that I might get it at one of the saloons. Now, the town of Woodman has only about thirty or forty inhabitants, probably; but there were two buildings nearly if not quite as large as the dry-goods store, devoted to the saloon business. I told him I did not like to go into saloons, even to get change. I suggested that two saloons for so small a town were about too many; but he did not agree with me. He further added, that people *need* not go into saloons unless they choose, and that, if nobody went into them, there certainly would not be any. My friends, I want you to hold that idea right in your minds. If nobody goes into saloons there will not be any; and if you stop now patronizing and encouraging them they will very promptly stop existing.

Men whom you find around railroad stations carrying passengers, driving hacks, or keeping livery-stables, are not, as a rule, I believe, *godly* men. I do not know just why it is so; but I am sorry that I have found it so; but it seems to be the rule. Of course, I commenced getting acquainted with this new friend, as I always do, while we were on our six-mile trip. I told him I was the editor of a bee-journal, and we talked about bees and honey. Then I spoke of the nice old couple I had just left. Said he:

"Mr. Root, you would hardly believe it, but those old people cheat so fearfully by putting sugar in their honey that nobody will buy it any more."

Of course, I expostulated; but he declared the more vehemently that everybody knew it, and seemed to think that was much the way with people who read the Bible, and sing and pray. I plead for Christians, as I always do. He afterward informed me that these old folks had a son, some little time back, who was a notorious cheat. He kept the store and postoffice. He was right smart, of course, and *got rich* by cheating.

"Why," said he, "it was amazing, the amount of sugar that man had shipped into town. Even the station agent said the quantity was unheard of for a town the size

of Woodman; and what else could it be used for except to manufacture something they called honey, and then make believe the bees gathered it?"

I presume most bee-keepers will readily surmise that the sugar our enterprising young bee-man and storekeeper had brought in was to feed his bees, and keep them from starving during drouths and poor seasons. But his neighbors, especially those who did not know him intimately, would have it that he was manufacturing honey. May be it was wicked, but I led my companion along until he had given the whole family a regular setting-out; then I stopped him.

"My friend," said I, "I have let you talk, and now I want to teach you a lesson. How much does nice white sugar sell for in the town of Woodman?"

He said he did not know exactly, but probably about 10 cents.

"Very good. Now, do you know what they are retailing honey for in your town?"

He saw the trap he had got into, and did not answer. I went on:

"These friends of whom I have been speaking are selling beautiful basswood honey, even by the single pound, for only eight cents. Now tell me, pray, how anybody can buy sugar for 10 cents and put it into honey for which they get *only 8*." He was used up; but he made a faint plea that he was *sure* they put sugar in the honey when the sugar was cheaper and the honey was higher.

Now, dear friends, it is not only the men who drive stages and liveries that are guilty of bearing "false witness" against their neighbors in just the way I have indicated. *You and I* are both guilty of uncharitableness, and of being in haste to think evil in just this line. If I were riding with you an hour I think I could convince you of it, and without question you would have a chance to reprove me, providing I kept talking, as I should be pretty sure to do. It is just this kind of work and just this kind of spirit that have brought things to such a pass as to get these false statements in the papers in regard to comb honey being made of glucose and paraffine. As a rule, I believe that those who lack in education and culture are most guilty. Traveling among people at large, with the right spirit in the heart, helps one to overcome this habit.

Not many days later, another man carried me, with a pretty span of colts, eight or nine miles over the hills. His charges were very reasonable, and he was in many respects a nice old gentleman; but he gave me a glimpse of one of the worst cases of "bearing false witness" I have ever met. Of course, he found out in a very short time that I was a Christian. Then he warmed up and "went" for me. His good wife was present, for she went along for the ride. I turned to look at her face, and it expressed so much trouble as she said, "Please don't; it can't do any good," that she had my earnest sympathies at once. I breathed the little prayer, "Lord, help," and then "went" for him. He attacked professing Christians, declaring "our land was *not* a land of

liberty,* and then pitched into ministers. He said one of their best and biggest ministers around there was detected in horse-stealing, and that five horses were found in his possession. His wife looked pained, and shook her head. Then he said that he had some neighbors across the way who belonged to the church, and read the Bible, and prayed, and sang hymns, yet their children would steal like every thing.

"Oh! no, Mr. F., you must be mistaken."

"No, I am not mistaken. They stole my iron wedges; and every thing they can get their hands on they steal and carry home."

"But, my good friend, their parents certainly would not approve of their stealing. If they knew it they would most assuredly make them carry your iron wedges back again, or any thing else."

"No, they don't. They just encourage them in it, and teach them to steal more."

"My friend, it is possible that a *man* may be so depraved; but I am sure that no *woman*—no mother of a family of children—can go to church, and *sing* and *pray*, and at the same time encourage the children in stealing. Either the stealing would have to be dropped, or else the prayer-meeting would. The two can not possibly exist long together; and the same way with the man who belonged to a gang of horse-thieves. He might have been a good minister once; but when he commenced dishonesty, either the religion or the dishonesty *would have to go*. 'Ye can not serve both God and mammon.' For nearly an hour I repeated text after text. I hurled them at him like clubs, but of course I did it smilingly. He dodged and evaded, then started out on a new track; but I could see that I was gaining ground. I told him of the pious old couple who were accused of adulterating eight-cent honey with ten-cent sugar, and plead for the charity that "thinketh no evil." His wife looked more hopeful, and he, poor man, began to *admit* that all humanity except *himself* are not hypocrites. As I reached my destination he said something more about the Bible being the work of man. As I extended my hand to him in parting I said, "Mr. Fiddler, do you think it was a human voice, and was it in a line with humanity as we find it all around us, that uttered the words, 'Love ye your enemies, do good to them that hate you, *pray* for them that despitefully use you and persecute you?' Don't these words savor more of God than of man? and does not the very thought savor more of *heaven* than of earth?"

He smiled good-naturedly; and as I shook hands with them both I felt that my poor plea had not been altogether in vain; and as I walked down the lane to another bee-keeper's home, it was not altogether the hum of the bees above my head that made me feel buoyant, joyous, hopeful, and happy.

"Thou shalt not bear false witness against thy neighbor."

* The man who has no faith, either in God, his neighbor, or his country, is but a step away from anarchy.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

A VISIT TO J. M. SMITH, OF GREEN BAY, WIS.

DEAR friends, since I last wrote you I have made a visit to J. M. Smith, of Green Bay, Wis., the great horticulturist and market gardener of the State.

All that I saw that was interesting to me during that half-day would almost make a book. Friend Smith has 40 acres of land under the highest state of cultivation, and now covered with wonderful crops of vegetables and small fruits. He keeps an accurate account of his daily receipts, and these have been averaging for the past few weeks just about \$100 a day. Of course, he employs a large amount of labor—perhaps 30 or 40 full grown men; then there are enough boys to make quite a little Sunday-school, especially if we include the girls also, who were picking berries. Friend Smith first began on a single acre. His growth and progress were, as it usually is, by easy steps. When he made a single acre produce great nice crops, another acre was added to it, and so on. His first step was to thoroughly underdrain his ground. His soil is not naturally good—not as good, perhaps, as yours and mine; but it was all he had, and he started out to make the best of it. His ground is so near on a level with Lake Michigan that he can not, by doing his best, get a fall of more than one inch to every hundred feet of tile; therefore you may be sure the underdraining was carefully done.

Now, besides the careful underdraining I was agreeably surprised that friend Smith has decided just as I have done, that we need surface draining also. The underdrains are about two rods apart, and right over them he has surface drains through all his 40 acres. This makes his ground in beds about two rods wide. These beds are highest in the middle, and slope gradually toward the surface drains. The surface drains are so shallow the cultivator or loaded wagon crosses them without difficulty. During the present season, when we have had such excessive rainfalls, I knew our ground was injured by becoming so saturated with water that it settled down just about as hard as it was before it was plowed. It was worth my whole trip to Green Bay to satisfy myself on this single point of surface drainage as well as underdrainage. Of course, the crops were all in long rows parallel with these surface drains.

Considerable has been said about cropping ground continuously, without seeding it down and turning under the sod. Even Peter Henderson recommends that market-gardens be rested occasionally. Now, friend Smith does nothing of the sort. In fact, he says he could by no manner of means spare his expensive highly manured ground for a crop of clover only to be turned under. Although his season is so much shorter than ours, he gets two and often three crops on the same ground every season. For instance: On his first acre of ground (which was so mellow and rich one could kick his foot down six inches or more, almost any-

where) I found young currant-bushes just commencing to bear. Between these, onions had been grown, and the boys had just pulled them, piling them in these shallow surface drains so as to be out of the way. Let me say, these shallow surface drains also make convenient narrow roads, or by-paths, for gathering the crops. Well, the great white onions were piled here in long winrows, where they could dry out; and just as soon as they were up, the ground was manured again, the manure cultivated and worked in with modern tools, then the celery was planted.

Friend Smith plants celery or cabbages when he gets ready, no matter whether it rains or not. The hottest day I have experienced this season was Thursday, July 18; and during this day, friend S. with his boys set out about two acres of cabbage-plants. While I was wondering that they dared to set them out during such a fierce heat, one of the boys came up and suggested that it would be only a waste of time and shoe leather to replace what cabbages had died. None of them died worth speaking of. I expressed a curiosity to see how it was done. While friend S. has never had facilities for irrigation to any great extent, he has a tank and windmill. The tank would hold perhaps 200 barrels. In different places on his ground are hydrants covered by square wooden boxes. When transplanting celery or cabbages during very dry weather, a common iron pipe, perhaps 200 or 300 feet long, is attached to the hydrant, and carried along these surface drains. Then a hose, perhaps 100 feet long, is attached to the iron pipe. By means of the iron pipe and hose, barrels of water stationed all along the paths (or, rather, surface drains) are readily filled with water. Then the small boys, by means of watering-cans, put a pint or quart of water in the hole where each cabbage-plant is to be placed. The plant is then put in, then some soft dry earth pulled over the wet surface, to prevent baking. In this nice, rich, highly manured soil, cabbage-plants take right hold, and grow, rain or no rain; and the same way with celery. Wagon-roads go through the grounds at intervals, and baskets and wheelbarrows bring the products along the paths I have mentioned, to the wagon.

Another thing about these surface-drain paths: I was told that I could hardly find a weed on friend Smith's whole 40 acres. Our good friend was obliged to own up, however, that, during the past season, the excessive rains had made the ground so wet many times, at the same time making the weeds grow so fast, he had got behind, like many of the rest of us. The weeds, however, were being rapidly cleaned out. They were all thrown into these surface-drain paths, then pitched into carts and carried to the compost heaps in various parts of the grounds. I did not see any weeds going to seed, and I presume that none were allowed to mature. On one piece of ground I saw about 3000 currant-bushes. Each bush was an extra-fine one, about like a few you have seen and can remember.

On this extra highly manured and well-

drained ground, the currants were of immense size, and bush after bush was bending with its beautiful load of fruit. Why, I should not be surprised if they got almost a whole bushel from some of the bushes. They were far enough apart so that they had sun and air enough to ripen thoroughly. His crop of strawberries was about 250 bushels per acre; but he plants the old kinds, the Wilson and Crescent.

With his soil and his method, the new kinds do not answer so well. In talking about underdraining, where you can get a fall of only one inch in 100 feet, I asked him if he had a scientific engineer to lay out the work.

"Not at all," said he; and he added, "whatever you do, do not ever get a scientific engineer to help you lay your under-drains."

He manages a good deal as Terry does. He gets down into the ditch, and lays the tile himself; and, if I am not mistaken, he pours water into all the ditches to be sure that it will run off before he lays the tile.

Of course, he keeps quite a number of pigs to consume the refuse; and I was very much pleased to find that he had been keeping cabbage refuse in a *silo*. All the leaves left where the heads are gathered, and all the poor or immature heads, are put into this *silo*; and he showed me a fine sow that he said had had nothing else for months but cabbage from the *silo*. This cabbage was put away last fall.

I do not remember now how many horses he keeps; but there are something like a dozen. He also has some fine cows. His stables are as neat and clean as any I have ever visited.

Green peas is one of his special crops; but when the market will not pay him a certain price, the vines are cleared from the ground, and peas, vines and all, are given to his pigs, and so with almost every crop. In order to have enough to supply the demand, he often raises fine crops to go into the compost heap or to the pigs. For instance, I saw a fine bed of Henderson's New York lettuce—beautiful, crisp, large-sized heads; but as lettuce is very perishable, and there is no market for it just now, he said the whole crop must go at once into the compost heap. Of course, such things do not happen very often; but it is better for the market-gardener to have too much than not enough. I shall in future touch upon incidents of my visit, probably, quite often.

July 29.—At the present writing, the Henderson lima beans are making nice little pods in great abundance. I am sorry to say that two or three of the Kumerles are going up the poles lively. The most of them, however, behave considerably like the Henderson bush lima.

The boys sold all the berries at good prices in my absence; and now there is a good demand for something for pies. A currant-plantation, such as I saw at friend Smith's would be a big investment in Medina just now. We are getting 12 cents a quart for blackberries, and the market is not half supplied. We need four times as many as we have now. Green apples for

making pies would also be a fine thing if we had them.

Notwithstanding the repeated rains there is an excellent demand for all kinds of garden stuff. The Stratagem peas and wax beans still sell readily at 40 cents a peck. Where people once become acquainted with Stratagem peas there will be a good demand for them all summer long. This season our Stratagems are true to name. We have not found a bogus one among them.

GARDENING FOR AUGUST.

I have before mentioned the sad sight that most of the gardens presented that passed under my eye during my recent trip. Many of the lawns and front yards were beautiful to behold; but the back yard and vegetable-garden, whenever the railroad gave us a view of them—oh my! what a sight! Faded, wilted, and useless crops; weeds; pea-vines and potato-tops, and every thing else that was displeasing to the sight, seemed to be the rule. In a few places I saw the refuse cleaned up, and neat bright-green rows of celery taking their place. But these were the exception and not the rule. At Green Bay, in the vicinity of friend Smith's wonderful work, there was a different order of things. Such a man's example is contagious; and in front of the stores and groceries of Green Bay I saw the neatest assortment of garden vegetables I ever saw anywhere. The sight would have done credit to the market places of our great cities early in the morning.

Now, friends, it will pay you just as well to make garden in August as it will to make it in April and May. Let us see what can be done with the ground now cumbered with weeds where your early peas, potatoes, and other crops have been growing. Celery is always in order under such circumstances. A nice strawberry garden in July and August is a thing of beauty, and I saw just such a one at Boscobel, Wis. It belonged to one of our bee-men, and I believe he bought the plants of A. I. Root. If you have water at your command you can put out asparagus roots in August. You can sow the seeds, any way. Purple-top Globe turnips, or White Egg, are seldom without a purchaser. Now is the time to sow the seed. Wax beans, in our locality, will give a good crop if we have the usual amount of rain. The Eclipse beets will also make nice beets for the table, and most markets will use a large amount of them. If you have very strong large plants of Jersey Wakefield cabbage, if set now in the ground with plenty of manure, they will make nice heads before winter. Early carrots also usually do fairly when sown the first of August. Corey's Extra Early corn may make roasting-ears, if we have plenty of rain and a warm fall. If it does not, it will pay cost for fodder for your cow. Cress usually does nicely if sown now. Cucumbers for pickles rarely fail when put in by the first of August, and you may fill your whole garden with these and do well. Most kinds of lettuce will give a good crop late in the season, if sown now. Onion seed for onions for bunching, or onion-sets, if there is plenty of rain, will also answer. If you did not get

out your *Egyptian* onion-sets in July, they will do almost as well if put out now. Parsley will be right for winter, if sown in August. Alaska, or American Wonder peas will probably give at least a few before frost. All kinds of radishes, and especially the winter radishes, will give a crop. Spinach is just in time to make large bushy heads, without running to seed; and it will usually stand without protection until Christmas or later.

There, haven't I made out a pretty good list for gardening, for the month of August? Now, you can have your choice—a nice beautiful garden where every thing grows from the word "go," or an unsightly crop of weeds and rubbish. The seeds of the weeds (if the latter are allowed to go to seed) will make you trouble as long as you live on the place. If you do not do any thing else, mow them down or cut them off with a scuffle-hoe, and burn them up. Kill the weeds, even if you do not raise a nice crop.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG. 1, 1889.

In my Father's house are many mansions: if it were not so, I would have told you. JOHN 14:2.

We have 8939 subscribers.

THE HONEY FLOW.

We had a slight flow from basswood. It was good while it lasted, but ceased abruptly after three or four days, and then robbers began to make their unwelcome appearance.

A POINTER FOR EXTRACTED-HONEY PRODUCERS.

SQUARE cans are now actually cheaper than new kegs or barrels, and the return freight no higher than on kegs. Remember, the cans are adapted for any climate, and they do not shrink or swell like the wooden packages.

HONEY FROM RED CLOVER.

HONEY is coming in again (July 31st), this time from red clover. In the supers of some of the stronger colonies, the bees have begun to store honey. With the amount of rain we have been having we may get something from this source.

J. M. JENKINS.

We have had a very pleasant visit from J. M. Jenkins, Wetumpka, Elmore Co., Ala. He represents our establishment in the South, and reports an unusually good year for bees. Friend Jenkins is alive to the bee-keeping interests of the South, and no doubt has done as much, or more than any other man for the advancement of modern apiculture in Dixie.

MUCH ADO ABOUT BEES.

OUR correspondence has grown at such a rate that our *letter postage alone* now costs us, on a close estimate, \$1000 per year, to say nothing of the cost of stationery and printing, directing, etc. Verily, there is much ado about bees in other ways than through the medium of conventions and bee-journals, and it will take more than falsehoods about manufactured comb honey to squelch it.

SEASONABLE "LOOK OUTS."

LOOK out for robbers. Look out and don't leave a comb of honey leaning against the hive over night, nor a cover not tightly fitting. Look out for that honey-house door. Put a sign on it in big letters, YOU SHUT THE DOOR. Look out for the entrances of small nuclei. Look out when robbers get started while you are working over a hive. Close up and go to another part of the apiary. Lastly, take a lookout over the apiary to see if all is well. Leaving a comb outside by mistake, may result in a horse being stung, and the loss of the horse, or, possibly, the loss of human life may follow. I have just had a tussle with "old Charlie," because one of the boys left a comb leaning against a chaff hive over night.

BEE-KEEPING NOT A NUISANCE.

OUR co-worker, Thomas G. Newman, of the *American Bee Journal*, Chicago, Ill., has gotten out a pamphlet relating to the Z. A. Clark case, in Arkadelphia, Ark., entitled "Bee-keeping Not a Nuisance." The whole history of the case is given in full. Those who desire full information on the subject can obtain this pamphlet free of charge, either of us or by applying to the editor of the *American Bee Journal*, as above. Inquiries still come in as to how to join the Bee-keepers' Union, the entrance fees, etc. The entrance fee is \$1.00, and that pays for the dues for the unexpired year. The annual dues are \$1.00, and must be paid within six months to retain membership. The fees and dues must be sent directly to the General Manager, T. G. Newman, 925 West Madison St., Chicago, Ill., who will record the names and send receipts.

MY TRIP TO WISCONSIN.

I REACHED home on Thursday, July 25, after an absence of just two weeks. There are many things I should like to tell you all at once, but I have thought best to preserve them for future issues. I will say this, however, that the basswood yield of Richland Co., Wis., was fully up to all that it has been represented. The day I visited friend Freeborn, he brought in a load of 1800 lbs. of honey, and his boys brought in from another apiary, the same day, 1400 lbs. If I am correct, this yield was from less than 500 colonies, and was all gathered in about three days. Friday morning the hives extracted first were full again, and the boys were at work extracting when I came away. I am told that they never have poor seasons in Richland County—that is, there is always at least a fair crop of honey. They have had trouble in wintering, however, like the rest of us; but they seem to have got pretty well the upper hand of it now.

Italian and Carniolan Queens.

Thirty years a queen dealer. Prices low. Circular free. HENRY ALLEY, Wenham, Mass.

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ITALIAN BEES AND QUEENS.

One untested queen, 75c; three for \$2.00; one tested, \$1.25. Bees by the pound and nucleus.

16d H. G. FRAME, North Manchester, Ind.

In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS by return mail; tested, \$1; untested, 75c. LEININGER BROS., 16tfdb Douglas, Putnam Co., Ohio.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION. See advertisement in another column.

SPECIAL BARGAINS.

In looking over our stock we find the following lot of old-style honey-packages, which we offer at these very low prices simply because they are remnants of stock that we should like to dispose of:



Eleven 50-lb. round tin cans with handles and 1½-inch screw caps. Old price 50c. Will sell for 30c.

Nineteen 100-lb. round tin cans, with handles and 1½-inch screw-caps. Old price \$1.00; will sell for 60c each.

Seven 100-lb. cans as above, with a rim added to bottom; also an extractor honey-gate; very handy for retailing from. Old price \$1.75; will sell for \$1.50. Japanned and lettered "Pure Honey," 50c extra.



"Iron-Jacket" Honey Cans.

These are what we used to sell and recommend before we began to use the square cans. They are strong, and don't need to be boxed to ship when full. We have some of the 3 smaller sizes, which we offer as follows:

15 1-gal. cans, old price, 25c; will sell for 20c
37 2 " " " " " 38 " " " 30
34 3 " " " " " 47 " " " 40

If you take the whole lot of any one size of any of above cans, you may deduct 5 per cent. If you take the whole of 3 or more sizes, 10 per cent may be deducted.

A. I. ROOT, MEDINA, O.

A POSITIVE FACT
QUEENS BY RETURN MAIL

From the Old and Reliable Knickerbocker Bee-Farm (Established 1880).

Circular and Price List Free.

13-14tfdb

BOX 41.

G. H. KNICKERBOCKER,

Pine Plains, Dutchess Co., N. Y.

In responding to this advertisement mention GLEANINGS.

For Sale Cheap.

4 H. P. Engine and Boiler, Complete, \$180.
B. W. Payne & Sons Eureka Safety Power.

Almost new. Now at Higginsville, Mo. Who wants this bargain?

We have also to sell at a bargain a 1 H. P. Shipman coal-oil engine. It was a second-hand which we sent to the factory and had made over new. Is now as good as a new engine. We offer it for \$80. For any one who wants only a small power it is a bargain. Price of a new one I believe is \$125.00.

A. I. ROOT, Medina, Ohio.

KIND WORDS FROM OUR CUSTOMERS.

I received the queens in fine condition, not a dead bee in either cage.

G. W. CAMP.

Armona, Cal., July 10, 1889.

The honey tumblers you sent me were received with but one cracked in the barrel. I am well pleased with them.

A. L. KILDOW.

Sheffield, Ill., July 8, 1889.

The bees arrived yesterday in good condition. I am much pleased with them. The queen is a good looker. If she will raise bees like those sent with her she is all right.

D. H. ZEPPE.

Nokomis, Ill., July 26, 1889.

GOOD ADVERTISING.

Please do not insert my advertisement in your issue for Aug. 1, as I directed, for I am getting behind on orders. It will take me until about Aug. 8th to catch up with orders.

J. P. MOORE.

Morgan, Ky., July 22, 1889.

[No wonder, friend M., when you send out such nice queens.]

The bill of goods, shipping-bill, and remittance, reached us in good order last Monday. The bee-hat and veil, as well as some other conveniences, went immediately into service, and are just right. Even this "glorious Fourth" is made brighter by the hammock.

WM. A. ADAMS.

Eaton Rapids, Mich., July 4, 1889.

The extractor I ordered of you, which was shipped July 2, I received in good order. It has been thoroughly tested. I don't see where you can make any improvement in it. We think it a model of perfection. I much prefer your gearing to any up-right gearing I ever saw.

F. M. PECK.

Spring Green, Wis., July 31, 1889.

You requested us to renew if we had found GLEANINGS a good investment. We have found it so, and should not like to be without it, as we are beginners in bee-keeping, and have found many articles which have helped us in our work with the bees. We started this spring with 4 colonies; they have increased to 10. From one frame of brood, ½ lb. of bees, and untested queens received from you July 28, 1888, we have now 3 strong colonies, which are the best workers we have. The seasons so far has been too wet for much honey; but the weather is drier now, and we may have a good fall flow. We wish GLEANINGS success, as a journal of its kind should have.

BURK BROTHERS.

Burrell, Pa., Aug. 6, 1889.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La.; M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

COLONIES Italian bees at \$5; tested Italian queens at \$1; untested (young laying) Italian queens at 60c. Address OTTO KLEINOW,
15-16d 150 Military Avenue, Detroit, Mich.

PURE ITALIAN QUEENS.

50 tested queens now ready at \$1.00 each; 100 untested queens, every 3 days, at 70c each; 3 for \$2.00. A few selected breeding queens at \$2.00 each. All bred from imported and best selected home-bred queens. Safe arrival by mail guaranteed.

D. G. EDHISTON,

15tfdb Adrian, Lenawee Co., Mich

In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75

PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO.,

3tfdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

Italian and Carniolan Queens.

Thirty years a queen dealer. Prices low. Circular free. HENRY ALLEY, Wenham, Mass.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line advt (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

In responding to this advertisement mention GLEANINGS.

FOR SALE.—Italian queens, tested, at \$1.00 each, 6 for \$5.00; untested, 75 cents each. No foul brood. 12tfdb L. A. RESSLER, Nappanee, Ind.

THE BEST YELLOW ITALIAN QUEENS AT \$1.50 EACH.

I also wish to sell my newspaper subscription agency on account of the press of other work. Catalogue, and any other information free on receipt of postal request. The highest bidder takes it. Good reference given and expected.

C. M. GOODSPEED, 4-50d THORN HILL, N. Y.

In responding to this advertisement mention GLEANINGS.

No. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50 | Knife
No. 4, 1.25; No. 5, 1.00; No. 6, 65 | \$1.15

On receipt of the above price

SMOKERS and KNIVES

will be sent postpaid. Descriptive circulars will be sent on receipt of request card.

Bingham & Hetherington Smokers and Knives are staple tools, and have been used ten years without complaint, and are the only stovewood burning clear smoke bee-smokers; no going out, no vexation. Address

BINGHAM & HETHERINGTON, Abronia, Mich.

In responding to this advertisement mention GLEANINGS.

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 1tfdb

STRAWBERRY PLANTS

By mail at 75 cts. per 100. Varieties, Jessie, Jumbo, Captain Jack, and Crescent Seedling.

Address JACOB GUISINGER, Ada, O.

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.
See advertisement in another column.

JAS. F. WOOD, NORTH PRESCOTT, MASS.,

Will now ship by return mail, his warranted queens to any address, for 75 cts. each, or \$8.00 per dozen. Single queen to Canada, 85 cts. Being isolated from all black bees I am able to warrant every queen purely mated, and safe arrival guaranteed. Every queen is of good shape, and all have filled several combs with eggs before being shipped. I will replace every queen that hatches a black bee with a select tested queen, worth \$2.00.

If you want the best queens promptly, send me your orders. I am bound to suit you. Address as above. 13tfdb

IF YOU ARE IN WANT OF

BEES or BEE-KEEPERS' SUPPLIES,

Send for our New Catalogue.

OLIVER HOOVER & CO.,

4tfdb

Snydertown, Pa.

I AM AWAITING YOUR ORDER FOR 3-FRAME NUCLEI.

Price, with untested queen, \$3.00. Best tested queen, \$4.00; 2 frame nuclei, 50 cts. less. Combs straight and true; all worker comb, and bees finest of Italians. One untested queen, \$1.00; 6 for \$5.00. Best tested, \$2.50 each.

JNO. A. THORNTON,

Exp. Office, Ursa, Ill.

Lima, Ill.

Mention GLEANINGS.

12tfdb

HOME EMPLOYMENT. — AGENTS wanted everywhere, for the **HOME JOURNAL**—a grand family paper at \$1 a year. *Big cash premiums.* Sample FREE. **THOS. G. NEWMAN & SON,** 923 & 925 West Madison Street, - CHICAGO, ILLS.

☞ In responding to this advertisement mention GLEANINGS.

FOR SALE CHEAP!

75 COLONIES OF BEES,

Mostly Italians, in Root's Simplicity and chaff hives, \$4 per colony, hive included. Special prices for the entire lot upon application. Combs built on wired frames of foundation. I have other business, and the entire lot must be sold.

15-16d

B. T. BLEASDALE,
983 Woodland Ave., Cleveland, O.

☞ In responding to this advertisement mention GLEANINGS.

California.

FOR SALE.—A well-established trade in the supply business. For particulars apply to
16-17-18d Box 2, Duarte, Cal.

MIAMI

The BEST Late Strawberry ON EARTH! PRICE REDUCED

New testimonials and a fine lithograph and photo-engraving of the fruit. All leading varieties for sale. Send for price list and pamphlet to the originator, **J. D. KRUSCHKE, Box 824, Piqua, Ohio.**

☞ In responding to this advertisement mention GLEANINGS.

NOTICE. Sections, One - Piece,

4¼x4¼x2, open four sides. We have about 200,000 nice ones in stock at \$3.00 per 1000.

C. B. LEWIS & CO., Watertown, Wis.

☞ In responding to this advertisement mention GLEANINGS.

Black and Hybrid Queens For Sale.

For sale, 4 Carniolan queens mated with Italian drones, 50c each.

J. B. KLINE'S Apiary, Topeka, Kan.

Hybrid queens, 25c each, or 4 for \$1. Blacks, 5 for \$1. Guarantee safe arrival.

FRANK HOWARD, Fairfield, Wayne Co., Ill.

Fine hybrid queens for 25c; from imported mothers, 40c. **W. A. SANDERS, Oak Bower, Hart Co., Ga.**

Ten choice hybrid queens for sale by return mail, at 30c each, or 4 for \$1.

G. H. DENMAN, Pittsford, Mich.

Three very prolific mismated Italian queens at 35c each.

R. W. TURNER, Medina, Ohio.

To reduce my stock I will sell a few mismated Italian queens for 25c, and purely mated, 50c.

C. G. FENN, Washington, Conn.

A few young mismated queens, at 25c each.

GEO. L. JONES, Grand Ridge, Ill.

Hybrid and mismated Italian queens, for 35 and 50c.

GEO. L. FERRIS, Five Corners, N. Y.

Fine mismated Italian queens, reared this season from select tested mothers, will sell for 28c each, or 4 for \$1. Stamps taken. Safe arrival guaranteed.

C. F. GRUBB, Jubilee, Davidson Co., N. C.

BEE-HIVES, SECTIONS, ETC.

We are now selling our No. 1 V-groove sections, in lots of 500, at \$3.00 per 1000; No. 2 sections at \$2.00 per 1000. For price of Italian queens, foundation, smokers, etc., send for price list.

J. STAUFFER & SONS,

Successors to B. J. Miller & Co.,
Nappanee, Ind.

16tfdb

☞ In responding to this advertisement mention GLEANINGS.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION.
See advertisement in another column.

Crawford's Folding Paper Boxes

For Inclosing Section Honey.

THE BEST BOX FOR THE LEAST MONEY!

\$5.00 Per 1000

and less, according to quantity. Send for sample and price list. **A. C. CRAWFORD, S. WETMOUTH, MASS.**

☞ In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange 3 L. frame nucleus, with yellow Italian queen, in one-story Simplicity hives, worth \$2.00, for white paint, or offers.
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange pure Italian queens for extracted honey. Please correspond with description of honey and price, f. o. b., cars at your station.
WM. W. CARY, Coleraine, Mass.
15tfdb

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address
OTTO KLEINOW,
4tfdb No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange bees for extracted honey.
J. F. MICHAEL, German, Darke Co., O.
15-16-17d

WANTED.—To exchange fine Damascus double-barrel b. l. gun, for 3 or 4 h.-power engine. Also Model press and type, for power fodder-cutter.
15-16d **O. BRUMFIELD, Brumfield, Ky.**

WANTED.—To correspond with parties having land for sale, or to exchange for property in this county. For particulars address
-17d **L. C. CALVERT, Poplar Flat, Lewis Co., Ky.**

WANTED.—To exchange Bubach, Jessie, and Sharpless strawberry plants, for comb honey, or offers. **F. S. MCCLELLAND, New Brighton, Pa.**

WILL exchange my apiary, 30 colonies, prime condition, all fixtures, 1½ acres, good house, fruit, small barn, for desirable personal property; price \$500; a home at a bargain.

D. E. DARROW, West Eaton, N. Y.

WANTED.—To exchange choice colonies of fine Italian bees, for good extracted honey. Please write, sending sample and price delivered at your station.
W. J. HILMAN, Green River, Vt.

WANTED.—To exchange full colonies of bees for a 2 to 4 H. P. engine, Barnes hand-ripper, or foot-lathe.
M. LUDTMAN, Hannibal, Ohio.

WANTED.—To exchange box of Florida sea shells for tested Italian queen.
J. CROSS, Liverpool, Fla.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Market is rather unsettled yet. We quote extracted, California, at $7\frac{1}{2}$ @8c; orange bloom, $7\frac{1}{4}$ @ $7\frac{1}{2}$; common Southern, $6\frac{5}{8}$ @ $7\frac{1}{2}$ c per gal. White clover and basswood, extracted, $7\frac{1}{2}$ @8c. As to prices for comb honey it is too early yet to form an opinion.

Aug. 10. F. G. STROHMEYER & Co.,
New York.

CHICAGO.—*Honey.*—Receipts of comb honey are quite up to the present demand, which is by no means active. Sales are made at 14 @ 16 c for one-pound sections. Extracted is selling quite well at from 7 @ 8 c, and the receipts are not accumulating to any extent.—*Beeswax* is scarce and in good demand at 25c.

Aug. 8. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

BOSTON.—*Honey.*—We have received quite a little new honey since writing you last, and we find it of very good quality. We are selling from 17 @ 18 c. Sales a little slow on account of warm weather. Extracted selling from 8 @ 9 c.—*Beeswax*, 25.

Aug. 9. BLAKE & RIPLEY,
Boston, Mass.

KANSAS CITY.—*Honey.*—New crop is coming in slowly; 1-lb. sections, white clover, 16 c; 2 lb., white, 14 . Extracted, white clover, 9 c in 60-lb. cans; dark, $6\frac{1}{2}$ @ 7 . Demand light.

Aug. 9. HAMBLIN & BEARSS,
Kansas City, Mo.

CINCINNATI.—*Honey.*—Demand is good for comb honey in 1 and 2 lb. sections, at 12 @ 15 c in a jobbing way. Trade is good also in extracted honey in square glass jars for table use, and in barrels for manufacturers; it brings 5 @ 8 c on arrival.—*Beeswax* is in good demand at 20 @ 22 on arrival for good to choice yellow.

Aug. 9. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

COLUMBUS.—*Honey.*—The arrivals of honey are more liberal. Owing to the high prices at which it is held, it is moving slowly. We are trying to get 16 @ 17 c for choice goods in pound sections. A number of our best customers claim that they can buy it for less money from outside parties.

Aug. 8. EARLE CLICKENGER,
Columbus, Ohio.

NEW YORK.—*Honey.*—Extracted in very good demand at the following prices: Orange blossom, per lb., $7\frac{1}{4}$ @ $7\frac{1}{2}$ c; white clover and basswood, 8 @ $8\frac{1}{2}$; off grades, Southern, per gal., 6 @ 7 c. We have some new comb honey which we quote as follows: Fancy white, 1-lb. sections, unglazed, 16 c; off grades, 1 lb., 14 c; fancy white, 2 lbs., glazed, 14 c; off grades, 2 lbs., 12 c.

Aug. 12. HILDRETH BROS. & SEGELKEN,
New York.

ALBANY.—*Honey.*—Some inquiry for new honey, no receipts to speak of yet. Light, comb, 15 @ 18 c; dark, 12 @ 13 . Light, extracted, 8 c. H. R. WRIGHT.

Aug. 8. Albany, N.Y.

ST. LOUIS.—*Honey.*—Market quite dull. We quote extracted, bright, $5\frac{1}{2}$ @ 6 c; dark, 4 @ $4\frac{1}{4}$.—*Beeswax*, 23 $\frac{1}{2}$.

Aug. 10. D. G. TUTT GRO. CO.,
St. Louis, Mo.

PHILADELPHIA.—*Honey.*—Honey as yet not wanted. Market usually starts here about Sept. to Oct. I generally open at 14 @ 16 c for prime No. 1 in 1-lb. boxes.—*Beeswax*, bright yellow wax, is wanted here at 23 @ 24 c.

Aug. 9. CHAS. E. SHOEMAKER,
Philadelphia, Pa.

DETROIT.—*Honey.*—New comb coming in slowly, and selling from 13 @ 15 c. Extracted, 8 @ 9 c.—*Beeswax*, 23 @ 24 c.

Aug. 9. M. H. HUNT,
Bell Branch, Mich.

FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections and 12-lb. cases, at 16 c (for 10 lbs or more). Also 60 lb. screw-cap cans of extracted clover honey, at 5 ¢ per can. Safe arrival guaranteed by freight.

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

WANTED.—Choice comb honey in 1-lb. sections.
F. S. MCCLELLAND, New Brighton, Pa.

FOR SALE.—25,000 lbs. choice extracted white-clover honey, in barrels holding about 550 lbs. net, each. I put it up also in packages of any size desired, in either wood or tin. There is no finer honey than this in the market. Write me what you want, and I will give you prices.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Eight tons of white clover and basswood honey, in 25-gallon kegs. Also a few tons of good amber and dark honey.

FRANK MCNAY, Mauston, Wis.

FOR SALE.—In 60-lb. screw-cap cans, boxed singly, 4000 lbs. white-clover extracted honey, of the finest quality, all from supers on the tiering-up plan. Price $\$5.00$ per can in small lots; 5 cans or more, $\$4.75$ each.

RUFUS PORTER, Lewistown, Ill.

WANTED.—500 lbs. of nice comb honey.

A. D. ELLINGWOOD, Milan, N. Y.

BEES

SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at $\$1$ a year—the oldest, largest and cheapest Weekly bee-paper. Address
16tfdb BEE JOURNAL, Chicago, Ill.

THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free.

W. Z. HUTCHINSON, Flint, Mich.

Please mention GLEANINGS.

13tfdb

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.
See advertisement in another column.

ITALIAN

BEES AND QUEENS. Tested queens, $\$1.50$. Untested, 75c. Bees, per lb., 85 cts. Frame of brood, 50 cts. Nuclei a specialty. Send card for price list.

MISS A. M. TAYLOR,
9 10tfdb Box 77. Mulberry Grove, Bond Co., Ill.

(*) In responding to this advertisement mention GLEANINGS.

DR. TINKER'S QUEEN-REARING CHAMBER

The only practicable invention for rearing and securing the mating of a number of queens, and getting them all laying at once in full colonies of bees. Patented July 16, 1889. For particulars address with stamp, DR. G. L. TINKER,
15-16d NEW PHILADELPHIA, O.

(*) In responding to this advertisement mention GLEANINGS.

The Secrets of Success in the Growing of Small Fruits

Gives you the benefit of several years' experience in growing berries for market, together with my illustrated catalogue and price list of berry-plants; sent free on application. Now is the time to set strawberry beds for next year's fruiting. Jessie, Cloud, and other new varieties.

16-19db

I. A. WOOLL, Elsie, Mich.

(*) In responding to this advertisement mention GLEANINGS.

CHOICE ITALIAN QUEENS.

Tested, $\$1.25$ each; untested, June to Oct., 75 cts.; 3 for $\$2.00$. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tfdb JNO. NEBEL & SON, High Hill, Mo.



Eaton's Improved SECTION CASE. BEES AND QUEENS. Send for free catalogue. Address, FRANK A. EATON, Bluffton, Ohio.

(*) In responding to this advertisement mention GLEANINGS.



Vol. XVII.

AUG. 15, 1889.

No. 16.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.
PUBLISHED SEMI-MONTHLY BY
A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES, NO XII.

NUMBERING HIVES—RECORD BOOKS.

IN the main, the management of an out-apiary does not differ from that of any other; and after years of experience you have had in the home apiary you are pretty well settled in your plans. I will, however, offer some suggestions to any whose experience is yet very limited, as to some of the things that may be especially appropriate for out work, and you can judge whether any of them are worth adopting, for you. Some things, too, may come up that would never be needed in home work.

In numbering hives it will probably be found convenient to adopt some system by which the numbers can be easily changed. A satisfactory way is to have tin tags painted white, with black figures on them, fastened on the hives with half-inch wire nails.

231

TAG FOR NUMBERING HIVES.

About 4 x 2½ inches is a good size, with figures two inches long, so that they can be plainly seen at a distance. These tags can be easily changed from one hive to another, and with out-apiaries you may find it very convenient, if not necessary, to change them quite frequently.

It is well to adopt some system of numbering by which you can tell, from the number, to which apiary a colony belongs. A good way is to let the first numbers belong to the home apiary, then the next series to another, and so on. This will be very satisfactory if you never run higher than 100 in

each apiary, for then you can tell at a glance that 87 belongs in the home apiary, 187 in the Wilson apiary, etc. If you expect that, before fall, some of your apiaries may contain as many as 125 colonies, then it may be well to let the numbers 1 to 125 belong to the home apiary, 126 to 250 to Wilson's, 251 to 375 to Hastings, and so on; but in that case you may not think so quickly whether 380 belongs to the third or fourth apiary. An easier way to distinguish would be to let the first apiary run from 1 to 200, and the second from 201 to 400. An objection to this whole plan is, that you may feel unpleasant some day to have some one, on seeing a tag marked 240, ask you, "Why! have you 240 colonies?" when in fact you have only half that number. A way to avoid this is to commence at the number 1 at each apiary, preceding it by an initial letter. Then two hives, marked "H 87" and "B 87," would be recognized as belonging respectively to the home and the Belden apiary. On the whole I think I prefer the simple figures. If you bring all your bees home to winter, you need pay no attention to numbers, but place them next spring indiscriminately. Thus you may find the first row in the home apiary commencing with the numbers 42, 17, 183, 260, and so on. Their new numbers are to be 1, 2, 3, 4, but the old numbers should be left on till you have entered them on your record book for this year, and transferred any item you may wish to keep about them, which will usually be only the age of the queen, noting in the new record the number they had the preceding year, so that you can at any time trace back their history. After your record is all straight, then take off all tags and number the hives in order. I am well aware that many of our best bee-keepers do not keep any record book, but have little slates on hives, or a system of stones, etc. I suspect, however, that at least some of them, after establishing out-apiaries, would find advantages in the record system that did not exist so

long as only one apiary was kept. If you have only a single colony, you will probably remember all about it without book, slate, or stone.

As the number of colonies increases, the demand becomes more imperative for some aid to the memory. Still, with even a hundred colonies I knew my colonies somewhat as I would know a herd of cows, and a glance over the apiary would bring to mind pretty well the condition of the different colonies, and what was to be done. But when it comes to having more than one apiary, especially if there are several, you can't run out and in five minutes see what shape you left any hive in at last visit. With the record-book you can sit at home and look over the condition of all your apiaries, and on a rainy day you can do this just as well, when you would not like to be out looking over your slates. It is sometimes pleasant and profitable to look over the records of past years, and a comparison of them in long winter evenings may be of some value.

A 20 cent blank book makes a good record-book, and it will be found convenient to have a pencil tied to it with a string. A pencil is better than ink, for it may sometimes get wet. C. C. MILLER.

Marango, Ill.

There are some things in favor of the book plan. The fact that the condition of the apiary may be noted on a rainy day, and preparations and plans be made for work when the weather clears up, is quite an item in its favor. As you know, we use slates on each hive, and do not make use of numbers. Since we have had the apiary located at the basswood orchard, we have been filling orders for bees and queens from this place. Sometimes we have gone down with the horse and wagon, and taken with us an order-book. Not knowing the condition of the apiary, any more definitely than memory would indicate, we found that, on several occasions, we were unable to fill the orders which we expected to, at that apiary; and even after having arrived there, in order to find out where a two-frame nucleus or a select tested queen could be obtained, we might have to glance over the slates of perhaps two dozen hives before we found what we wanted. This entailed the necessity of carrying with us a smoker, shipping-box, etc. With the record-book we could have determined beforehand just where the order could be filled; and instead of running all over the apiary, have made a bee-line for the spot. On several occasions I have gone into our home apiary and made some alterations in one or two hives, in the absence of our apiarist, Mr. Spafford. As we have no numberings to our hives, I could not tell him in the office when I saw him next which hives I had changed, other than by a certain bungling circumlocation which might be something after this fashion:

Mr. Spafford comes in in the morning, and inquires after the work, when this conversation takes place:

"Oh! by the way, before you came this morning I filled an order for an untested queen, in the north apiary—let me see—in the third row from the north side, fourth hive from the end, counting from the west."

Mr. Spafford looks at me a little puzzled,

"In the north apiary, you say?" he repeats; "in the fourth row, and—"

He has gotten it wrong, and I interrupt him by saying the *third* row. Several times, as I could not tell directly, I have had to go out and point out the hive. Now, then, if the hive had been numbered I could have said, "From No. 123 I have sold a select tested queen. From No. 206 I took out a best imported." Knowing the location of the various hives, or about where the various numbers should be, he can make a bee-line for it. To the former he can give a cell or hatched queen, and the latter he can start to raising cells. If we should adopt the book plan, I should not care to dispense with the very convenient slates. If the two could be combined in some way, I should like it better. As to the numbering of hives, I am sure it is a convenience many times. ERNEST.

HONEY STATISTICS

FROM ALL PARTS OF THE UNITED STATES.

In order to read understandingly the reports given below, it will be necessary to observe the following points: First, the State is given; then next in their order are the names of the reporters, with their respective postoffices. To indicate locality, the usual abbreviations are used—N. S. E. and W., for north, south, east, and west; N. E. for north-east, etc. The letter C indicates the word "central;" E. C., east central, etc. In the following list, the first figure represents the month, and the second figure the date at which the report was rendered. The small letters, a, b, c, d, etc., indicate the answers to the questions propounded in questions a, b, c, etc., just below.

WE decided to send out the same set of questions that we did a year ago last July, in order that we might the better get the comparative results of the two seasons. Although the entire honey crop has not been taken off the hives in all localities, yet a report is rendered which shows quite decidedly which way the wind blows, as affecting the price of honey and the average production throughout the United States. The questions which we submitted are as follows:

- (a.) What is new comb honey selling at in your vicinity?
- (b.) What is new extracted honey selling at?
- (c.) What per cent of an average crop of honey do you estimate has been secured in your vicinity this season? Please answer this question simply by per cent; for instance, 50, 75, 175, or 200 per cent.
- (d.) How many pounds of honey, both comb and extracted, have you taken from your bees, and from how many colonies so far?
- (e.) Was the season with you this year good, average, poor, or bad?

ARKANSAS.

W. H. Laws, Lavaca. W. C. 8-10.
a. 15; b. 15; c. 75; d. 1000 from 80 colonies.

ALABAMA.

W. P. W. Duke, Nettleborough. S. W. 8-6.
a. 15; b. 10; c. 200, or a full crop of white honey; d. 3000 lbs. comb from 40 colonies; e. good.

J. M. Jenkins, Wetumpka. C. 8-1.
a. 10 to 15; b. 7 to 10; c. 100; d. 100 comb, 650 extracted, 16 colonies; e. average.

ARIZONA.

Jno. L. Gregg, Tempe. C. 8-5.
a. 10 to 12; b. retail 6, wholesale 5; c. 40; d. 190 colonies have produced 20,280 lbs.; e. rather poor.

CALIFORNIA.

W. W. Bliss, Duarte. S. E. 8-7.
a. 12½, wholesale, 15 retail; b. 7 to 8; c. 40; d. about 7500 lbs., 150; e. poor.

G. W. Cover, Downieville. N. 8-7.
a. 20; b. 20; c. 100; d. 1000 lbs. comb from 33 colonies; e. good.

CONNECTICUT.

Daniel H. Johnson, Danielsonville. E. 8-2.
a. 20 to 25; b. 18 to 20; c. 20 or less; d. 50 lbs. from 4 colonies.
Nothing from most of them; e. poor.

FLORIDA.

J. L. Clark, Apalachicola. S. 8-6.
a. 10; b. 9; c. 200; d. nearly 5000; 68, spring count; e. excellent.
John Y. Detwiler, New Smyrna. E. C. 8-5.
a. None produced; b. retail 10; c. 25; d. 1st extracted Island
apiary, 36 colonies, 1000, amber honey; extracted home apiary,
75 colonies, 20 hives, extracted 500. Balance allowed to fill up
in expectation of poor season. Colonies deficient in strength
from continual depredations of mosquito hawks during three
weeks of drouth. e. Poor.

GEORGIA.

T. E. Hanbury, Atlanta. N. 8-1.
a. From ruins 18. No section honey. b. 15; c. 200; d. 20 colo-
nies, 100 each; e. good.

J. P. H. Brown, Augusta. E. C. 8-9.
a. 15; b. 10; c. 50; d. about 500 lbs. from 10 colonies that were
kept especially for this purpose. The balance of colonies
were run for queens. e. The first part of the season was very
good, while the latter part is very poor.

Walter McWilliams, Griffin. W. C. 8-3.
a. 15; b. none offered; c. 175; d. 40 per colony on an average;
run for queens; e. good; fine prospects for fall crop.

ILLINOIS.

Reuben Havens, Onarga. E. 8-12.
a. 15; b. 12; c. 10; d. none; 40 colonies; e. bad.

Frank Howard, Fairfield. S. 8-7.
a. 25; b. 10; c. 25; d. 100 comb; spring 15, now 35; e. bad.

C. C. Miller, Marengo. N. 8-2.
a. 15; b. none; c. 75; d. 5000 from 245; not all off yet; e. nearly
average. On the road to Belvidere, on the trot. I'm burned
her dress again; anti-spark-smoker anxiously awaited.

Mrs. L. Harrison, Peoria. W. C. 8-3.
a. Wholesale 10 to 12; retail, 12; to 15; b. about the same,
for a choice article; c. 100; d. about 2000; 76 colonies, spring
count; e. average.

C. Dadant, Hamilton. N. W. 8-3.
a. 15; b. 10; c. 150; d. 35,000 from 400 colonies; e. very good.

INDIANA.

T. H. Kloor, Terre Haute. W. C. 8-12.
a. 15 to 16; b. none in market; c. 25; d. 1800 lbs. from 60 colo-
nies; e. poor.

Mrs. A. F. Proper, Portland. E. C. 8-2.
a. 20; b. none extracted on market; c. 10; d. 200 from 55 colonies;
e. very bad.

Joe. A. Burton, Mitchell. S. C. 8-1.
a. 15; b. 8½; c. ½; d. 500 from 13; e. poor.

I. R. Good, Nappanee. N. W. 8-3.
We have not secured one particle of honey; and there is
none in the market. This is the poorest season we ever had
since I kept bees.

IOWA.

A. Christie, Smithland. W. 8-5.
a. 15 retail; c. 100 retail; c. 100; d. Have scarcely yet com-
menced taking off honey; e. very early, good. In fruit bloom,
cold and bad, necessitating feeding; later, average.

Oliver Foster, Mt. Vernon. E. 8-2.
a. 15 retail; b. 9 retail; c. 100; d. 2000 extracted, 500 comb;
from 350 colonies. Most of the crop is still on the hives. e.
average. My locality overstocked.

J. M. Shuck, Des Moines. C. 8-3.
a. 15; b. none selling; c. 100; d. I don't know; e. good.

Eugene Secor, Forest City. N. 8-1.
a. 15 and 16; b. 10; c. 90; d. have taken off but little. Have
"in sight" 1500 from 40 colonies in spring; e. average, nearly.

Z. T. Hawk, Audubon. W. C. 8-7.
a. 20; b. none on the market; c. 10; d. 50 from 20 colonies.
All comb; e. basswood and clover season bad. Fall season
just opening. Ask us later.

KANSAS.

B. F. Uhl, Boling. 8-4.
a. 16; c. 100; d. 50; e. good.

G. L. Hall, Burlington. 8-1.
Honey crop. My own, none. Pasture poor.

KENTUCKY.

D. F. Savage, Hopkinsville. S. W. 8-2.
a. 20; b. 10; c. 50. Fall honey will probably be very abundant.
d. 50 comb, 300 extracted; from 30 colonies. e. Bad, very bad.

Jno. S. Reese, Winchester. C. 8-1.
a. 15; b. 15; c. 150; d. 1500 from 12 colonies; e. extra good.

J. P. Moore, Morgan. N. 8-2.
a. 15; b. 10 to 11; c. 175; d. My whole apiary was devoted to
queen-rearing, except 2 colonies. They filled about 25 L. combs
each, making about 125 per colony. e. Good.

LOUISIANA.

J. W. K. Shaw, Loreauville. S. C. 8-7.
a. None sold in quantity; b. 75c per gal. at retail; c. 100 per
cent spring; d. little; 105 lbs. per colony to July 15; e. good.

H. L. Lewis, Oxyka. Miss. E. 8-6.
a. 15; b. 80c per gal.; c. 175 per cent; e. extra good.

MAINE.

J. Reynolds, Clinton. S. E. 8-7.
a. 20; b. 17; c. 20; d. 500 comb from 40 colonies; e. very poor;
too much wet.

C. W. Costellow, Waterboro. S. W. 8-5.
a. 30; b. 20; c. 50; d. run for increase entirely. e. Poor.

S. H. Hutchinson, Mechanic Falls. 8-1.
a. 30; b. none in market; c. 50; e. poor; too wet.

MARYLAND.

S. Valentine, Hagerstown. N. W. 8-6.
a. 15 to 20; b. none in market; c. about 35; d. one yard 2663
from 90 stands. e. Poor; too much rain.

Simon P. Roddy, Mechanicstown. 8-5.
a. 20; b. 15; c. 75; d. 400; 20 colonies; e. poor.

MASSACHUSETTS.

J. E. Pond, No. Attleboro. S. E. 8-6.
a. 25 to 30; 18 to 20 in 10 to 15 lb. lots; b. at same prices at re-
tail; c. 50 to 75; d. none, as I have only experimented; e. good,
early, wet and poor through June till present time.

E. W. Lund, Baldwinville. N. C. 8-5.
a. 22; b. none in market; c. 20; d. 150 comb; 20 colonies; e. bad.

Wm. W. Cary, Colerain. N. W. 8-3.
a. 16; b. 10; c. no surplus gathered; bees in almost starving
condition. Poorest season since 1866. d. None, and am feed-
ing now to prevent starving; e. very poor.

MICHIGAN.

A. J. Cook, Lansing. C. 8-1.
a. 15 to 20; b. 10 to 12½; c. less than 25; d. we have not taken
our honey off yet; e. poor.

George E. Hilton, Fremont. W. 8-1.
a. 15; b. 10; c. 25; d. 1500; 20 colonies; e. poor.

James Heddon, Dowagiac. S. W. 8-1.
a. 16 to 20 retail; b. 10 to 12; c. 25; d. from 200 colonies here,
about 2000; e. the worst season on record; very bad.

R. L. Taylor, Lapeer. 8-5.
a. b. No price established; c. 25; d. 4000 comb honey from 400
colonies; e. very poor.

H. D. Cutting, Clinton. S. E. 8-3.
a. 16; b. 10; c. 75; d. 25 comb from 65 colonies. But honey is
not quite ready to come off; will take off in about 10 days; e.
poor.

W. J. Carroll, Otsego. S. W. 8-10.
a. 16; b. 10; c. not more than 50; d. extracted 450, comb 100;
about 40 colonies. e. poor; prospects for fall honey good.

MISSISSIPPI.

W. A. & E. E. Montgomery, Pickens. 8-6.
a. 10; b. 7; c. about 50; d. haven't kept a record of how many
pounds; e. poor.

MISSOURI.

Jno. Nebel & Son, High Hill. E. C. 8-5.
a. 10 to 15; b. 5 to 8; c. 65; d. 2500 extracted, 700 comb, from 52
colonies; e. average season so far. The fall flow is often as
good as from white clover.

E. M. Hayhurst, Kansas City. W. 8-3.
a. 15 wholesale, 20 retail; b. 10 wholesale, 15 retail, c. 150; e.
good.

James Parshall, Skidmore. N. W. 8-3.
a. Retailing at 12½ to 15; b. 10. I sold one barrel at 9; c. 200;
for we never yet got any surplus before August until this sea-
son; d. 1500; 34 spring count have 72 now; e. extra good.

Chas. L. Gough, Rock Spring. E. C. 8-8.
a. 15; b. 10; c. 25; d. about 40 lbs. extracted; e. bad.

S. E. Miller, Bluffton. E. C. 8-5.
a. 15 to 16; b. 10; c. 45 to 50; d. 1250 extracted, 125 comb, from
37 colonies, spring count; e. very good. Expect a good flow
of fall honey.

MINNESOTA.

A. F. Bright, Mazeppa. E. 8-5.
a. 15; b. 10; c. 100; d. 3000 from about 80 colonies; e. about
average.

D. P. Lister, Lac Qui Parle. W. C. 8-2.
a. 20; b. 12½; c. 75; d. 750; basswood 27; e. good, if bees were in
proper condition.

J. H. Johnson, Fairmont. 8-9.
a. 20c at retail; b. don't know of any in market; c. 100; d. 40
lbs. each from 15 colonies; e. average so far.

Wm. W. Hamilton, Jackson. 8-1.
d. Eight pounds from 3 colonies; e. good for swarming, poor
for surplus in basswood bloom.

N. P. Aspinwall, Harrison. C. 8-3.
a. 15 to 20 wholesale, 20 to 25 retail; b. none on the market; c.
100; d. 650 comb; 20 colonies. Season not over; e. good. In-
crease 100 per cent.

NEBRASKA.

Jerome Wiltse, Falls City. 8-5.
a. 16 to 20; b. 16; c. 100; d. 800; 52; e. good.

A. E. Maley, Auburn. 8-10.
a. 20 to 25; b. 15; c. 85; e. very good.

J. W. Porter, Ponca. N. E. 8-2.
a. 20 and 25; b. 12½ and 15; c. 10; d. 400; 130 colonies; e. very
bad for surplus honey.

NEVADA.

E. A. Moore, Reno. W. C. 8-6.
a. 15 to 25; b. 16; none here only what I have; c. 175 per cent,
d. about 800 lbs. comb, 1200 extracted. e. Very good; I shall prob-
ably get 1500 lbs. more if it is not too dry.

NEW HAMPSHIRE.

S. F. Reed, No. Dorchester. C. 8-5.
a. 20; b. 15; c. 50; d. 100, from 5 run exclusively for honey; e.
very bad so far.

C. E. Watts, Rumney. C. 8-3.
a. 25; b. 25; c. 10. d. have taken only one finished section from
8 colonies yet; e. poor.

L. A. Freeman, Lancaster. N. W. 8-7.
a. 20; b. there is none in the market; c. 100; d. perhaps 100
from 4 colonies; e. good.

NEW JERSEY.

J. D. Coles, Woodstown. S. W. 8-3.
a. 20; b. none; c. 75; d. 25 per colony; e. average.

Watson Allen, Bernardsville. N. C. 8-3.
a. 18; b. 12; c. 10; e. 200 lbs. from 50 colonies; e. very bad.

NEW YORK.

G. M. Doolittle, Borodino. C. 8-3.
a. b. No market here for honey; c. 25; d. the little I have is mainly on the hives yet; e. poor.

H. P. Langdon, East Constable. N. E. 8-8.
a. 20 to 25; b. 12 to 15; c. 75; d. 3000 extracted from 60 colonies with 100 per cent increase; e. poor.

Frank Boomhower, Gallupville. E. C. 8-1.
a. No price, no honey. Have not seen a pound of comb honey so far this season; floods of rain; bees have done nothing so far; c. d. 0; e. bad.

M. G. Young, Highland. 8-7.
a. b. Have sold none; c. 30; d. about 800 comb from 40 colonies. e. Poor.

NORTH CAROLINA.

Abbiott L. Swinson, Goldsboro. E. 8-5.
a. 10 to 12½; b. none here; c. 90; d. 50 comb from one hive. Others run for queens; e. average.

OHIO.

Chas. F. Muth, Cincinnati. S. W. 8-5.
a. 12 to 14 for best in a jobbing way; 20 retail; b. 9 to 10 for best by the lb.; 15 retail; c. perhaps 75; d. about 800 from 28 colonies, spring comb; e. poor.

S. A. Dyke, Pomeroy. O. 8-1.
a. 12½; b. none; c. 100; d. 75 from 2 hives; e. good.

Dr. H. Besse, Delaware. C. 8-2.
a. 20; b. 18; c. 100; d. about 600; 40 colonies; e. good.

Dr. G. L. Tinker, New Philadelphia. N. E. 8-1.
a. 18; b. 15; c. 100; d. 1000 of comb, 500 ready to extract; from 25 colonies; e. average.

PENNSYLVANIA.

Geo. A. Wright, Glenwood. N. E. 8-8.
a. 12½; b. 10; c. 75; d. my honey is still in the cases; e. fair.

S. W. Morrison, Oxford. S. E. 8-2.
a. 25; b. 12; c. 50; d. apiary engaged in queen-rearing; e. honey very abundant, but too wet; e. bad.

Thos. C. Davis, Idlewood. C. 8-2.
a. 20; b. 20; d. 500 comb from 12 colonies. Will extract 600 from 13 colonies. Increase, 50 per cent.

RHODE ISLAND.

A. C. Miller, Providence. E. 8-3.
a. b. None on the market, either old or new; c. 100 to 125; d. 225 from 3; others not heard from; e. good.

SOUTH CAROLINA.

W. J. Ellison, Stateburg. C. 8-6.
a. 12½; b. 8 and 10; c. apiary 1, 50; apiary 2, 100. Only kept a record of 9 in apiary 2—74; c. apiary 1, bad; apiary 2, good; five miles apart.

J. D. Foose, Coronaca. 8-5.
a. 10; b. 8 to 10; c. about 50; d. 350 extracted from 12 colonies; e. average.

H. T. Cook, Greenville. 8-3.
a. 10; b. 20; c. 150; e. good, till in July.

TENNESSEE.

C. C. Vaughn, Columbia. C. 8-5.
a. 15; b. 8; c. 75; e. poor.

Gaston E. Cartmell, Jackson. W. 8-7.
a. 10 to 15; b. none in market; c. 25 or less; d. not 5 to the colony; 50 colonies; e. bad.

TEXAS.

J. E. Lay, Hallettsville. S. W. 8-5.
a. 15; b. 10; c. 25; d. unfinished; e. poor.

L. Staehelhausen, Selma. S. C. 8-10.
a. 10; b. 8; c. 50. d. 10,000 extracted; 2000 comb from 200 colonies; e. less than average.

J. P. Caldwell, San Marcos. S. W. 8-6.
a. 10; b. 8; c. 25; d. 200 from 20 colonies; e. the worst within my knowledge.

VERMONT.

Howard J. Smith, Richford. N. C. 8-2.
a. 20; b. 12; c. 100; d. 50 comb honey per colony; e. good; the best ever known.

A. E. Manum, Bristol. W. 8-5.
a. b. No price yet; c. 30; d. about 15,000 comb from 500 colonies; e. poor.

F. M. Wright, Enosburgh. E. 8-5.
a. 18 and 20; b. 13 retail; c. 50; d. 2500; 50 colonies; e. average.

J. W. Porter, Charlottesville. C. 8-5.
a. 12½; b. 10; c. 120; d. 1500 from 30; e. bad for me; my bees have foul brood.

Will Thatcher, Martinsburg. W. C. 8-2.
a. 10 and 12½; b. none in market; c. 10; d. 1500 or 1600 tiered on 40 colonies; e. not average.

J. E. Crane, Middlebury. W. 8-10.
a. 15 to 18; b. 10; c. 50; d. 6000 lbs. comb and 200 extracted from 200 hives, one half of my bees; e. season poor.

VIRGINIA.

H. W. Bass, Front Royal. N. 8-8.
a. 12½; b. same; c. 65; d. has been so wet that our honey is not finished, and we have taken but 1000 lbs. off as yet. Never knew bees to seal up honey so slowly, it is so thin and watery, on account of so much rain.

WEST VIRGINIA.

J. A. Buchanan, Holliday's Cove. N. 8-1.
a. 15 to 18; b. 15; c. 50; d. 6000 extracted from 100 colonies; e. below average.

Jno. C. Capehart, St. Albans. S. W. 8-1.
a. Nice—20; b. 10; c. 25; d. 10, average of 20 colonies; e. poor and bad.

M. A. Robley, Milton. S. W. 8-6.
a. 15; b. none; c. entire failure; 2 per cent; d. 25 from 62 colonies; e. bad, badder, baddest.

WISCONSIN.

J. C. Sayles, Hartford. S. E. 8-10.
a. 14; b. 7; c. 150; I worked for increase; e. good.
S. I. Freeborn, Ithaca. S. W. 8-2.
a. 12½; b. 8; c. 100; d. 300 colonies; 32,000 extracted, 200 comb; e. good.

Frank McNay, Mauston. C. 8-3.
a. 12 to 15; b. 8; c. 100; d. 20,000 from 350; e. average.

E. France, Platteville. S. W. 8-3.
a. 16; b. 8 to 10 retail; 7 to 8 wholesale; c. 75; d. 26,000; 530; e. good but short.

Joshua Bull, Seymour. E. 8-2.
a. 15 wholesale, 18 retail; b. 8 wholesale, 10 retail; c. 100; d. 2500 nearly all comb from 40; e. average.

TOO LATE FOR GENERAL CLASSIFICATION.

A. A. Sanborn, Westfield, Mass. S. W. 8-7.
a. b. None in market; c. 4 to 5; 6 to 8 lbs. from one colony; e. very bad.

J. P. Israel, Olivenhain, Cal. S. 8-8.
a. 7 in San Diego; b. 5 to 5½; c. 20—honey season is ended; d. 2500 lbs. from 80 colonies; e. bad, very bad.

On account of the cool wet weather in the early part of the season, which, according to the reports, seems to have pervaded almost all of the United States, the honey-crop is considerably less than it might have been. First, because this weather continued clear up, in a good many of the places, into the time of year when the main nectar-bearing flora was in bloom. Second, the bees were unable to breed up properly on account of the cool and rainy weather, and hence the actual working force of the bees was considerably lower than it should have been. But in spite of all this, the season has been decidedly better than last year, in most localities, although there are some exceptions.

Twenty States report a good season: namely, Alabama, Arkansas, Georgia, Illinois, Iowa, Kansas, Kentucky, Louisiana, Minnesota, Missouri, Nebraska, Nevada, New Jersey, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Wisconsin, Arizona.

The following States report a poor season generally: California, Connecticut, Florida, Indiana, Maine, Maryland, Massachusetts, Michigan, Mississippi, New Hampshire, New York, Tennessee, Texas, Vermont, Virginia, West Virginia.

Michigan, though usually among the foremost, gives as unfavorable a report as any of the States enumerated.

It is interesting to note that a number of States report 200 per cent as the average crop of honey received. W. P. W. Duke, of Alabama, and J. L. Clark, of Florida, report 200 per cent, while a large number of others give 175 per cent as the average crop. Taking it all in all, we find that the average per cent of question C, as to what has been the average crop of honey secured in the respective localities, stands 75 per cent. The same average a year ago was only 50 per cent; so that, according to the reports, 50 per cent more honey has been secured this year than last, although the general average is still down.

Perhaps we should remark, that the report has probably been underestimated rather than the reverse. The tendency of human nature, and especially when its hopes are set high, is to look down instead of up. Farmers, as well as bee-keepers, are much inclined to complain about the poor season, too much drouth, or too much wet, or something else that is not just exactly right.

MARKETING HONEY AT COMMISSION HOUSES.

SOME FACTS NOT TO THEIR CREDIT.

NERETOFORE I have marketed my honey in barrels, 50 gallons each. From year to year I shipped two or three barrels and managed to retail the remainder at the small towns within 25 or 30 miles of my apiary. Last year everybody who kept bees had honey for sale at about 5 cents per pound. It has been my observation, that box-hive bee-keepers cut out their comb honey, carry it to town, and sell it for what they can get, and pay 25 cents per gallon for black sorghum for their family to eat, that is hardly fit for hogs, and do without during half of the year, unless they raised the sorghum. In that case they have sorghum all the year, provided they can not sell it. I can not hope to have a home market under such circumstances. Last year I extracted 10,000 lbs. of honey, and for the want of a market I left all the supers full of comb honey, which would have amounted to about 4000 lbs. if I had extracted it.

I made a mistake somehow, and realized less for my honey than some previous years with a much less crop. I have a barrel of my last year's honey on hand yet. I shipped two barrels of honey to D. G. Tutt & Co., of St. Louis, about two or three months ago. It was horsemint honey, and had granulated. It was capped over before I extracted it. I never raised better or sweeter horsemint honey. Tutt & Co. wrote to me, in a few days after shipping it, that it had soured, and that one of the barrels had been burst in transit, and that they sold the remainder at 5½ cts. per lb. I got \$30.00 for the two barrels of honey. If such transactions as that would not burst a bee-keeper from shipping honey, I should like to know what it would take to break him from sucking eggs.

When I commenced writing I did not think of writing more than an order; but since I have mentioned carrying over comb honey in supers I will tell you how I lost a good customer a year ago last winter. I carried over 1000 lbs. in supers to the following spring. The winter was very cold, the thermometer going down to zero one day and night, and my honey granulated in the hive. I always carry over some comb honey in supers to the following spring for weak colonies and swarms. I did not use it all for that purpose, and the first two or three barrels of extracted was mixed with granulated honey. I thought it the best honey I ever extracted. I liked it better than all-liquid honey. I got an order from Colorado City for a barrel of honey, and it so happened that I shipped one of the barrels mixed with granulated honey. The parties wrote immediately to know what was the matter with it. They said it had granulated. They never saw granulated honey at that season of the year before. I honestly explained, but could not satisfy them, and have not had an order from them since.

I sent a sample of granulated honey to a friend in Mills County, Texas, last winter. I am not sure that I know what the bees gather it from; but when first extracted it is almost as clear as pure water. The dry granulated is as white as the whitest sugar (I extract from one to three barrels of that kind every year). He wrote me that the merchants said they did not want it; that it was not honey; that they never saw honey as white as that;

that it was artificial honey, or that I fed my bees on something to produce it.

In the fall of 1881 I had five weak colonies that I fed. I have not fed since, except one frame of honey stored by bees. When spring opened in 1882 I had two weak colonies, about one pint of bees each. I have at this writing more than 200 colonies. I have extracted over 500 gallons this year. I don't know any thing about bad years for bees and honey in Texas. Since my failure in 1881, every year has been good, some better. Texas is a land of honey. God has in a special way blessed it with honey and bees—and with men, too, who love black thick sorghum better than honey, and who have been educated to hate the bee.

E. Y. TYRRAL,

Co. Judge of Milam Co.

Cameron, Tex., July 29, 1889.

Friend T., I am afraid you are a little too severe on our friends Tutt & Co. Perhaps they made a mistake in calling the honey sour, instead of having a disposition to cheat. I know there is quite a disposition to suspect bee-men of adulteration and fraud, or of feeding bees something to produce honey; and when we think of the tirade of falsehoods that are constantly being published in this direction, can we really blame them? I do not know what more we can do than to keep on fighting these mischievous falsehoods. We want to get stanch men in every community to stand up squarely and steadfastly—men who will not be weary in contradicting and explaining. Personal interviews with the editors, I do believe, is going to be the next work before us. Who will enlist in the work?

MANUM IN THE APIARY WITH HIS MEN.

VISITING NEW HAVEN APIARY, LET OUT ON SHARES TO H. B. ISHAM.

GOOD-MORNING, Henry, and good-morning, Mrs. Isham."

"Why, good-morning, Mr. Manum. I had nearly made up my mind that you had forsaken us entirely. Just think of it! You have not been here since the first of May. I was telling Henry only yesterday that I believed the loss of your good wife, and the past three poor seasons, had so discouraged you that I feared you were neglecting your business. Well, I am very glad to see you once more."

"Thank you, Mrs. Isham. But I have been here once since May, though I did not see you. I only called at the apiary a few moments to see Henry and the bees; and as to neglecting business, I never looked after the bees any more closely than I have this season. Why! the three past poor seasons have nerved me up to the highest point of ambition; and I am toiling on with all my might, in the endeavor to regain what I have lost in the past three years in dollars and cents. The loss of my good wife, it is true, has cast a gloom over my home, which loss I can never regain while I remain in the body. But when I reach the other shore I expect to regain what I have lost. Although I am not a professing Christian, yet I believe—yea, I know—my wife still lives, and I believe it is well with her; and when my work here is done, I too

shall be 'born again' from this to a higher life. Hence I try to take a philosophical view of the matter, and to do the very best I can while I am permitted to remain here. You know, Mrs. Isham, our views differ somewhat in regard to religion; and as I am in something of a hurry, we will not discuss the matter now.

"Well, Henry, how are you getting along with the bees?"

"Very well, except in one thing. I want you to come to the apiary with me, and I will show you a pitiful sight. There, just look on the ground and see the bees crawling around. They are all over the apiary in this way. They seem to have lost the use of their wings. They come out of the hives in the morning, apparently to go out to work, and try to start; but they seem to be unable to rise, and then they walk off on the ground and in the grass,

Cook all about it, and sent him some of the affected bees, and I hope he will be able to give us some light on the matter. You wrote me that you could spare a few combs, and I guess I will take, some as we need them in some of the yards. Well, Henry, I must say that you have taken good care of them, so far as keeping the worms out of them; how did you do it?"

"Simply by looking them over often and picking out what worms I could find, and then hanging the combs on these racks, and placing each comb one or 1½ inches from the others, when, if I had placed them close together, it would have been impossible to keep the worms out."

"Well, there! I have all I can carry this time. Now I want a few combs of brood, if you have any hives that can spare it. I have drawn on my home bees all I dare to at present; and as your bees have



MR. MANUM AND HIS HELPERS.

and are lost. They are dying by the thousand every day; in fact, so many die that there is a very offensive smell in the apiary, caused by the dead bees. Can you tell me the cause of all this?"

"No, Henry, I can not. I have observed it in my home yard and in three others. I notice only the young bees are affected—that is, those that seem to have just commenced to work. I have picked them up and tossed them into the air to see them fall to the ground like so many peas. I also notice that their wings are perfect; none of them have ragged wings as old bees have, nor do they appear to be sick. I have caged some of them, and kept them caged four days without their showing any signs of being sick; but upon liberating them again they could not then fly. I fear this will cut our honey crop short from what it would have been were it not for this trouble, because the colonies are becoming very light in bees. I have written to Prof.

not swarmed very much, there must be some that would be benefited by taking away a card or two. I want the brood with what young bees will adhere to the comb for making more nuclei. By carrying the bees so far from their home, I find they stay much better than where they are used in the same apiary. There, I think I have now about all the load I can carry. How does the solar wax-extractor work?"

"Nicely. See what a nice cake of wax I have taken from it. Why, it will pay for itself several times over this year."

"Here, Mr. Manum, here is a bouquet for you that I have just made."

"Thank you, Mrs. Isham. How pretty it is! I noticed your flower-garden when I first came. I see you love flowers as well as ever. I shall place this bouquet on my wife's grave as I pass by the cemetery on my way home."

"Yes, do. I thought of her when I was making it. Good-by."

"Good-afternoon, Whittier. Here are a few young queens I have brought you to introduce here where you have killed off old ones. They are daughters of that choice queen I have talked so much about. They are very promising young queens."

"Sure enough, Mr. M., they are beauties in form, though I have seen much brighter-colored queens."

"It is not the *color* I am after; it is the *quality*; though the old queen's workers show the three bands yet, instead of being a bright yellow they are nearly brown; but they do get the honey, and that is what I want."

"There, I promised you a picture of that group of my bee-help, taken three years ago, and here it is.

tons of comb honey in one-pound sections. The next season (1886) the apiary contained 117 colonies, and she got only 250 lbs. of not very nice honey. She has since passed to the other shore.

"The next is Charles McGee, who commenced to work for me when I first started the supply-business. One day I got him to go to my then only out apiary to help slingle the new edition to the honey-house, it being a slack time in the shop, and at the height of the swarming season he became wild with excitement in seeing swarm after swarm come out; 15 swarms issued that day. Finally, while we were eating our lunch at noon he offered me \$5.00 for the next swarm that came out, which offer I accepted. In a few moments out came a very large swarm of pure Italians. I put them in a box, and



MANUM'S SIDE-HILL APIARY.

The first one on the right, standing near the row of Chapman honey-plants, is E. O. Tuttle. He is a young man from Massachusetts, who worked for me six seasons. He is somewhere in New York running a photograph gallery. The next is Duane Weatherbee, of Moriah Center, N. Y. He was with me two seasons, and is now at home on his farm. The next is Leslie Bissonette. He commenced to work for me when a mere boy, packing sections in boxes for shipment. He worked his way along up until I sold my supply business to Drake & Smith. He was my foreman. Since then he has worked for me at the bee-business.

"The next is Mrs. Eugene D. Sturdivant, a widow lady who had charge of one of my apiaries two seasons. The yard that she ran for me in 1885 contained 96 colonies, and she took from that apiary five

at night he carried them home. He now has about 175 colonies in two apiaries, and is a very successful apiarist.

"The next is Henry Isham, who has been with me off and on for over 25 years. For the past six years he has run my New Haven apiary on shares. He has half of the honey, without any increase of the bees. He does all of the work there, such as keeping the hives painted and repaired, etc. I furnish all supplies at cost, and he pays for half; he also pays for half the sugar fed to the bees.

"The next two are your humble servant and his son Fred—at the extreme left. Fred has taken but very little interest in bees until the past two or three years, since which he has run one of my apiaries during the honey season, and he is doing very well indeed; but even now he prefers to handle

horses, and work on the farm, rather than to work among the bees.

"Now I have explained this picture, I will present you this one, which is a view of this apiary you are running, as I make a practice of giving each new man a view of the apiary which he runs for me. This view was taken eight years ago, while Mr. Will Hinds was taking care of it. You will observe that the yard looks very much different now from what it did then, as there were no fruit-trees on the plat at that time, while now the hives are nearly all shaded by pear and cherry trees that I set out here the second year after I located the apiary, and nearly all are in bearing. I located this apiary here by request of Mr. H. B. Williams, who owns the land. He was anxious for me to do so, as he said he believed the bees would be a benefit to his crops. I chose this spot because the ground is descending, as I prefer to locate an apiary on a side-hill when I can, to secure good drainage; and I believe the bees can locate their respective hives much better than on a level plot, especially the young queens when they go out to mate; and as the honey-house is at the lower side of the apiary, I find it much easier to carry the honey down hill than on a level. Again, as each and every hive can be seen from the honey-house, the attendant can be watching for swarms while at work inside; and if a swarm issues he can locate the hive at once. This picture somewhat misrepresents the apiary, as one would imagine by looking at it that the ground is quite descending; but, as you know, it is not any too much so. The picture also represents the hives as being set on the amphitheater plan, when they are not, but instead are set in straight rows. I have three apiaries located on level ground; and I find in the spring, when the snow is melting, that snow-water often settles around the hives, making it too damp for the welfare of the bees. Here I stand in front with a brood-comb in my hands, and Mr. Hinds is a little way further up, with a swarm-catcher in his hands; and a little further up stands Mr. Williams; and a little to the right, standing on the edge of the ledge, is a neighbor's boy; while back of the boy, in the distance, is a mountain two miles and a half away. I am sorry this apiary does not face east or south east, as nearly all my other apiaries do; but instead it faces south-west; however, perhaps the bees do as well as though they faced some other direction, as four years ago Mr. McFarland took from 117 colonies, spring count, in this apiary five tons of comb honey and 500 lbs. of extracted honey, and increased to 176 colonies."

A. E. MANUM.

Bristol, Vt.

Friend M., we are exceedingly obliged, not only for your excellent pictures, which we think our engravers have succeeded wonderfully in copying, but as well for your pen-pictures. The group of helpers is wonderfully lifelike and suggestive. No wonder you enjoy your work. Your boy Fred looks as if he might do a pile of work, and possibly a pile of mischief, if it were the order of the day. We are very glad indeed to see one lady among your number; and it will doubtless be encouraging to her sex to know that she succeeded in getting a crop of honey that would be a credit to almost any of the men-folks. Very likely your helpers have different plans and ways of working; and may be they are as unlike in their disposition as in their looks; but the very

thought of having such a lot of friends, not only willing but capable, round about you, to lend a helping hand, when many duties press, is in itself inspiring. We can not all very well set others at work, for God has given us different talents and abilities; but we can, each and every one of us, be helpful to those round about us; and in my opinion it is right in this line where the greatest happiness and enjoyment come to every human being. "Not to be ministered unto, but to minister." Your apiary on the hillside was a very attractive and suggestive picture to me when I first set eyes on it. In our first apiary, as you may remember, we had a honey-house in the center, and the hives all around it; but although the honey-house had a door at each end, there was always something going on behind the house, which we could not see. For this reason I decided that our apiary at the Home of the Honey-bees should have no building, tree, or other obstruction, in the center. But your arrangement of hives placed on the hillside, facing the honey-house, fills the bill exactly. Providence permitting, I hope to see it some time, friend M.; and may be you or Fred, and perhaps some of the other helpers, if they are not too busy, will go with me to the top of the mountain, away off in the background. Hills and mountains, with running springs at their bases, will probably be hobbies of mine so long as I live; and when I come to visit you, I want you to point out to me all the springs and all the running water that is to be found round about your home.

COST OF MOVING BEES.

FRIEND DOOLITTLE RECONSIDERS SOME OF THE ANSWERS.

WITH your permission, Mr. Editor, I wish to say a few words regarding some of the answers to question 134, relative to moving bees to and from out-apiaries. Dr. Mason's answer to that question was simply astounding to me. Is not the bee-keeper to have any pay for the labor which he or she preforms? He says it does not cost him any thing, generally, to move bees, for he has his own horse, etc. Has he got such a kind of horse that it does not cost him any thing to keep him? If so, I wish he would purchase one of the same kind for me and ship it out here. If he will do this for me, using that same kind of time which he uses in moving bees, that kind which costs nothing, I will say "thanks" to him for his pay, and mean it from the bottom of my heart. The whole thing reminds me of a little incident which happened several years ago, when I was obliged to economize as closely as possible the money which came in from the bees, to make it meet the outgoes which I had to furnish by way of hives, etc.; for I resolved, after the first outlay on the bees in the beginning, that I would not pay out a cent further on them unless they brought it in to me to use for them. Having this in view, I went to see a neighbor who had some nice whitewood lumber, thinking that I could buy it cheaper than I could hire a team and go to the city and buy pine. When I asked the price of the lumber, he said it would be \$30 per thousand feet. When I demurred

a little, and replied that said price was all he could get for his lumber drawn to the city, many miles away, he replied that "he had to go to the city occasionally, and when going he could draw a load of lumber just as well as not, so that the drawing cost him nothing." Seeing my opportunity, I said: "I have been hesitating about buying this whitewood lumber for some time, because I prefer pine at the same price; and as you are going to the city occasionally, I should be pleased to have you put on a load of pine the next time you are there, and draw it back to me on the same terms you draw this whitewood lumber there."

Did he draw it for me? Oh, no! but he said he would do so for \$5.00 a load. Now, Dr. A. B. Mason, it costs you just as much to move those bees as it would to hire it done; hence I say that the cost in moving bees *does* figure in the matter of honey-production at out-apiaries. I believe that it costs the doctor much more to move those bees himself than it would to hire it done; and if he will stop to think a little I believe he will agree with me. Suppose he had put the same energy that he has put into the bees into some other calling in life, say dentistry, would he not have received as good pay for his time as he now receives from the bees? Undoubtedly; for I know of dentists that average their \$10 a day, or at least it is reported that they do. Now, if a dentist (as I believe Dr. Mason is), and having your time fully occupied with that specialty without "dabbling" with bees, how much would it take, doctor, to hire you to move bees for me, were you a near neighbor of mine? The point I wish to get at, is, that every man deserves pay according to the skill and energy which he puts into his profession, and that the bee-keeper is worthy of just as much pay for the skill, energy, and labor performed as he would be were he in any other profession in life.

In answering the same question, the Rambler says that the cost should be about 25 cts. per hour for labor performed by a man skillful enough to do such work as it should be done. I would ask him if he would work for that price during the hurrying part of the season of some four to six months, when many who have put no more thought into their profession than he has in the bee-business, get three times that pay for their labor. I would not. Look at what he expects to do in a little more than four minutes; prepare a colony of bees for shipment or hauling, carry it to the wagon and see that it is properly loaded, go with it five miles, then unload it, carry it to the stand it is to occupy, see that it is properly placed thereon, then take off the fixings that were used in shipping, getting it in proper shape to work during the season; doing all this for less than two cents! Surely bee-keeping must be light and pleasant work, for "the bees work for nothing and board themselves," while it costs only about two cents to do all of the above, where a skillful apiarist is permitted to furnish the muscle. Brethren, let us hear less of this nonsense, else the consumer will ere long think we should give them what honey they want to eat, and bring it around to their doors in the bargain.

QUEEN-CELLS OVER A QUEEN-EXCLUDING HONEY-BOARD.

On page 590 of GLEANINGS for July 15th I see Bro. Stachelhausen says that in his locality, during the homehint honey-flow, queen-cells will be destroyed over a queen-excluding honey-board. I am very much surprised at this, unless by mistake he has

let a queen hatch above, in which case the cells are always torn down which are already built, and those in process of building are deserted; but so long as there is no queen at liberty in the apartment where the cells are, I have never had a single cell destroyed, out of *thousands* so reared, at all times of the year, when bees could fly, and covering a period of over six years. I also have had reports from many who have tried the plan, and Bro. S. is the first one who has ever reported such a thing as a failure in getting queen-cells built and matured over a queen-excluder. I am now having, after our honey season is over, and bees trying to rob, queen-cells built and completed, virgin queens from one to ten days old kept in nurseries, virgin queens hatched and mated, and laying queens doing good work above queen-excluding honey-boards, with the old queen doing duty below, just as I gave in my book, and have been having the same success ever since the basswood opened. By the addition of a little wire cloth, I believe I have perfected the plan of having queens fertilized, as I give in the book, so it will work at any time and in all localities. G. M. DOOLITTLE.

Borodino, N. Y., Aug. 2, 1889.

Very good, old friend. I am glad you have taken up this side of the question. The only plea that can be made in favor of charging nothing for your work with bees, that I know of, is that it is recreation outside of office hours. I think if Dr. Mason had as many out-apiaries, however, as some of the Wisconsin brethren, he would begin to think that the bees were the *business*, and recreation of some other kind would in time be needed. In summing up the expense of any such work, I think the operator should charge the time, or mention the amount of time consumed. Even if it were done nights and mornings, or outside of regular business hours, statements for print should figure in the cost. Our agricultural papers give glowing accounts of what may be done with many of our rural industries, omitting entirely to mention the time occupied, and brain and muscle consumed, for it does take time, brain, and muscle to make a success of any of these enticing industries.

AMONG THE BEE-KEEPERS OF VERMONT.

A VISIT TO J. E. CRANE AND J. H. LARRABEE.

MR. CRANE has an attractive home toward the outskirts of Middlebury. In the rear of the modern house, with its lawn-bordered porches, are connected buildings of similar style containing the stable, work-shop, and honey-room. Here he and one of his men were busily engaged weighing and crating comb honey for market. Crates taking 20 sections were placed upon the scales, and filled, the last few sections being changed until the weight came out even pounds. Piled near by were a lot of filled crates ready to be shipped. Part of the sections were glassed; the rest were in paper cartons, neatly printed with his address.

Mr. Crane, who has long been known as a producer and dealer in comb honey, has probably marketed all together more than any one else in the State, if not in New England, and is, therefore, not

unfamiliar with what the trade demands. He began with a few colonies in 1866, and has followed the changes and improvements up to the present time. As an advanced and experienced bee-master he has few equals. His location, one of the best for white clover, has been favorable to success. At one time, when canal-boats were the means of travel, he took his crop to New York and sold it at a price that would bring a fortune to the extensive producer of to-day.

Although we came rather unexpectedly, he obligingly left his work and showed us about. In an inner room, another hand was sorting and cleaning sections. Here we saw a section crate made to hold the ordinary closed-side section with separators, and which met our ideas nearer than any thing we had ever seen or heard of. It was simple, easily and cheaply made, protected the sections both top and bottom; and by a follower and simple wedge, sections were crowded tightly together. It was a simple box, with solid sides and ends, with slat bottom firmly nailed. Slat were as wide as the narrow piece of section. Movable wood separators were used, and the ends projected into slots sawed in the sides of the case. These were wide enough to give some play. There was no bee-space at either top or bottom of the crate. When on the hive, the space above the frames gives one bee-space beneath the first crate, and none is allowed between the others.

Sections come out cleaner than from any arrangement we had ever seen; and what cleaning is necessary is done with less labor. The tops of a crateful are all cleaned and scraped before removing; and when emptied, and the crates cleaned, they may be loosely filled with the cleaned comb honey, and tiered up in the honey-house to ripen. Blocks may be put under the corners of each case to raise each a little from the other, to give a free circulation of air. It was made to cover the brood-chamber of the large hive he uses. We should be inclined to make it in two parts, so that the outside could be brought to the center when desired. He uses the large Quinby hanging frame, and in the home apiary were many of these hives. Here we were shown some very fine Italian queens. He manufactures a smoker of heavy tin, with double valve to protect the bellows from fire, and which differs from others in many respects.

We were driven to the out-yards, in which we were much interested. They are from three to six miles apart. All colonies were in chaff hives, with movable outer case, although different from what we saw at Manum's. Entrances were level with bottom-board instead of being underneath. Hives were numbered, and arranged in groups of four or five, facing outward instead of in rows. At each yard is a small work-shop. To get the bees out of sections, cases of honey are taken from the hives, placed in a dry-goods box, and covered with a cloth which is occasionally turned. One apiary is located in the edge of a wood where they are protected from winds. The underbrush is cleared away, and we think the apiarist in charge must appreciate the situation in the heat of summer. Queens are kept clipped, and at the beginning of the honey season they are removed to prevent the issue of natural swarms. This plan has been described in GLEANINGS. Mr. Crane, with Captain Hetherington and P. H. Elwood, who have been studying this problem, have adopted it in preference to any other.

Sweet clover is very plentiful throughout this region, the roadsides being covered with it, and it furnishes some honey. In 1868 Mr. Crane commenced to plant alsike clover; and since, many in that vicinity have grown it.

The season of 1869 was one of the best, and he secured 3000 lbs. of comb honey from about 120 colonies. In 1883, 26,400 lbs. from 300 colonies. In 1885 his crop was 23,000 lbs. In 1887, 18,500 lbs.; and last season, from 550 colonies in the spring he secured about 11,000 lbs. of comb honey. During the season, this number in five yards of about 150 colonies each are cared for by himself and three men.

Although long an "advocate of wintering on summer stands," he has lately come out in favor of cellar wintering.

Mr. Crane is of middle age, of good height, spare, rather nervous, and of light complexion. He has a wife and one boy, a bright child of six or seven years, of which he is very proud. He is a prominent Prohibitionist in his town, and is interested in church work. He has followed bee-keeping because his health was not of the best, and he was obliged to give up other aims. For the same reason he does not further extend his operations nor write more for bee-journals. He informs me that the first bee-book published in America was printed in Middlebury, just fifty-two years ago.

Our time being limited, we reluctantly took leave of Mr. Crane and family, and boarded the train for Larrabee's Point, where we hoped to find Mr. J. H. Larrabee at home.

The station is on the Addison branch, between Leicester Junction, on the Central Vermont Railroad, and Ticonderoga. After passing the stations of Whiting, Shoreham, and Orwell, and just before the train crossed the trestle and drawbridge over Lake Champlain, which is here quite narrow, we were dropped at a crossing near which was friend Larrabee's home.

After making inquiries we started off across the fields; and after a half-mile walk reached our destination. Here the bee-keeper's eye at once noted a good number of neatly painted chaff hives, arranged on ground which slopes to the south, from the pleasant and comfortable-looking farmhouse, with its wide front porch and guard of trees and shrubs.

We were heartily welcomed by both Mrs. Larrabee and son, the only ones of the family at home during our stay, which they made very pleasant.

John Larrabee is a bright young man of about 25 years, and is social and very friendly. He has had bees five years, and now keeps 98 colonies, mostly blacks, with a few colonies of hybrids and pure Italians. All are in chaff hives with movable outer cases.

The soil here is a heavy clay, and white clover is very plentiful. There is some basswood on the ridges, and sweet clover abounds on all the roadsides, although the latter, he informs us, gives no surplus. His bees have paid their way from the start. In 1885 he increased from 8 to 18 colonies, and obtained, 500 lbs. of comb honey besides. That season the bees gathered clover honey from the middle of June till the middle of September. In 1887 he obtained from 30 colonies, 2000 lbs. of comb honey. Last season he secured, from 98 colonies, 2300 lbs. His comb honey was put up in cases holding twelve 1-lb. sections, and the quality and flavor were fine.

His home being within half a mile of Lake Champlain, and about opposite Ticonderoga, there is a fine view of the lake, with its passing boats, the old fort on the further shore, and the Adirondack Mountains in the background.

Pawtucket, R. I.

SAMUEL CUSHMAN.

In your opening paragraph you hint at an idea I have often longed for, but did not know that it had ever been made practical; namely, having crates holding an exact number of pounds. Just think of telling your grocery or commission man that your load contains 50 cases of honey, with 20 lbs. in a case, just 1000 lbs.! and you might add that, as the agreed price was 15 cts., he could just hand over his check for \$150, and that would be all of it. Now think of the other plan of having every one of the 50 cases have odd pounds and ounces, to be figured and added and blundered over! It seems to me, however, that it would need quite a little assorting to make them come out right. With an expert hand, however, I do not know but that it might be done. I think that Dr. Miller might do it without very much trouble, especially if he had his wife and sister to handle the sections, without bumping them or making any of them leak.—We remember friends Crane and Larrabee as progressive bee-keepers for many years past. We are glad indeed that you dropped down on them and let us know what they are up to. We are glad to know that they have not been letting the grass grow under their feet, even though they have not given us very much for the journals of late.

WIRE TOP-BARS.

QUEEN-TRAPS, ETC.

NOTICING your foot-notes following A. L. Kil-do's letter on page 632, I wish to say that I began making the Langstroth hive from directions given in father Langstroth's old edition of "The Hive and Honey-bee." In that book you will find that the top-bars are to be made $1\frac{1}{8}$ inches wide; and you will see that, by putting them in a $1\frac{1}{4}$ space, they will be pretty close together. I was very glad to change to one inch, and from that to $\frac{3}{8}$, and found each change beneficial. While it may be true that a few less brace-combs may be built between the top surface of the top-bars, and any honey-board or surplus receptacle above, it is a fact that it by no means prevents a good many brace-combs being built there; but then the worst of it is, they plug in hard combs, or more properly wax plugs, between the edges of the top-bars when put so close together, which makes the frames well nigh immovable. I am very sure that whoever makes any top-bars to frames more than $\frac{3}{8}$ wide will regret it. Some 12 years ago I experimented quite largely with making top-bars so thick that the right-angled sides ran down toward the bottom of the hive $\frac{3}{8}$ or $\frac{3}{4}$ of an inch before the V began. I liked these bars very much because they were stiff, and bees were less inclined to build brace-combs either between or above them. Still, they would build more or less. I should use such bars now were I not using frames wired with full sheets of foundation which I consider preferable to

every thing else, and $\frac{3}{8}$ is the right width for the Langstroth frames, and $\frac{1}{8}$ less for the Heddon frames.

QUEEN AND DRONE TRAP.

This subject has interested bee-keepers to no small extent. On page 22 of my book is illustrated and described the best trap of the kind which, to my notion, has yet been devised, and yet I have abandoned it. On page 637, last GLEANINGS, in your foot-notes to Query No. 137, you pen the following: "With the Dovetailed hive we have lately been using an ordinary queen-excluding honey-board between the bottom-board and the brood-chamber. Unlike the ordinary drone-excluders and queen-traps attached to the entrance itself, it causes no obstruction to the bees passing in and out." And you should have added, "To the ventilation of the hive or the air passing in and out." But to show you that I have experimented largely with this principle, and, I believe, ante-dated all others in writing about it, let me refer you to page 104 of my book, written in 1884, and from it I quote the following regarding the "New" hive:

I believe that, by virtue of the style and method of adjustment of the bottom-board, cases, and honey-board, by using the latter, made queen-excluding, we can place them in such a way as to control swarming and flight of drones, without the serious objections realized by the use of entrance attachments, which we have enumerated on pages 22 and 23.

If you place one of the queen-excluding honey-boards on the bottom-board, and the brood-cases upon it, you will preserve proper bee-spaces throughout, and force all bees to pass through the honey-board, in leaving or entering the hive. The drones and queen can not leave or enter the cases. By experiment we found that this arrangement did not retard ventilation, nor in any way disturb the normal tranquility of the colony; but further than this we have not experimented. What shall we do with our imprisoned drones? How can we catch our queens, when they attempt to go out with the swarms?

I have faith in a simple arrangement for catching and holding them imprisoned, in a movable box, adjusted to the side of the brood-chamber, near the front end, but not in front of the entrance; thus in no way retarding ventilation, or egress and ingress of the workers. As soon as perfected and tested, it will be publicly described, and attached to the New hive, if proven a practical success.

I will add, that further experiments with the queen-excluding honey-board below the brood-chamber prove very satisfactory in some cases; yet there is some trouble with it which I will not take space to detail here. However, it is far ahead of any entrance arrangement, in my estimation. I will further add, that it is better to have the honey-board which is used in this position *all metal*, such as I wrote you about when father Langstroth was visiting me a year ago last spring.

Now, as to the "simple arrangement" for catching and holding drones and queens at the side of the hive near the front, mentioned in my book as above quoted, it is a perfect success; and although any one skilled in the art could go on and successfully make it after simply giving the above hint, I will, if you desire, describe it in a future article. That this arrangement is far ahead of any entrance arrangement for the purpose, there is no doubt. Still, I do doubt whether or not, in rapid and cheap honey-production, any of it is of much value; and, further, I wish to add that, in the production of comb honey, queen-excluding is of very little value—perhaps not enough to pay bee-keepers at large for using queen-excluding metal, provided they use the bee-space break-joint honey-board, which

will as surely come into general use among practical honey-producers as did the Langstroth hive.

JAMES HEDDON.

Dowagiac, Mich., Aug. 5, 1889.

Your experience with wide top-bars has been ours almost exactly. I first commenced with a hive made after Langstroth's book, as you did; and I kept making the top-bars narrower until I got down to $\frac{1}{4}$ of an inch. Then I increased their width until we had them $\frac{3}{4}$, and settled down upon the latter dimension as the best for the purpose. Our metal corners were then made just right for the $\frac{3}{4}$ lumber. I know that top-bars very thick up and down do a great deal to discourage brace-combs; but by the use of wired frames, we, like yourself, greatly prefer to have brood in place of the useless wood, as much as we can.

BEE-HATS FOR WOMEN.

BY AN AMATEUR LADY BEE-KEEPER.

AS an amateur bee-keeper I was much interested in Mrs. Harrison's article on "Attire for the Apiary," in GLEANINGS of April 1st. She seems to have found some difficulty in making a suitable hat; and as I have nowhere seen or heard of a hat which so perfectly meets the demand of lady apiculturists as that arranged by Mrs. R. H. Holmes, of Shoreham, Vt., I should like to give the readers of GLEANINGS the benefit of her idea.



MRS. HOLMES' BEE-HAT.

The first thing needed is a wide-rimmed straw hat—mine measures five inches. For the veil, take a strip of mosquito-bar, wide enough to reach from the base of the crown on the outside of the hat to the arm-pits, and long enough to fit loosely around the shoulders, with the exception of about twelve inches, which is of the finest black bobinet lace. Join the ends. Turn in one edge and gather on to the base of the crown. Face the other edge with a strip of cotton cloth, fitting the shoulders tightly. At the back of the arm, attach a strap which passes under the arm and buttons on to the band in front. If necessary, run into the band a cord to tighten, as the occasion may require. The black bobinet is less trying to the eyes than any thing else, and is almost no obstruction to the sight. If properly made

there is no falling in on the neck, and no rubbing of the nose and chin, yet perfect freedom of movement to the head. I wore one last summer, and found it perfectly comfortable, as Mrs. Holmes assured me I would.

MISS G. M. WOLCOTT.

Shoreham, Vt., June 5, 1889.

Miss W., we are exceedingly obliged to you for the description you have given, and also for the excellent photograph you send along with it. Our engravers have succeeded excellently, we think, in reproducing it. We think, however, you would find the silk brussels net, which we use for our bee-veils, still better for the eyes than the bobinet, which you mention.

CUBA AGAIN.

O. O. POPPLETON GIVES US SOME ADDITIONAL FACTS CONCERNING THE ISLAND; BEE-KEEPING AND PROTECTION.

FRIEND ROOT:—On page 585 you ask me some questions which I will try to answer as briefly as possible. Our 50,000 lbs. of honey was sold to a firm in New York at 55 cents per gallon, all round, in bond; that is, Mr. Dussag pays all expenses on it until delivered in a bonded warehouse in New York, purchaser paying all after expenses, including the import duty of 20 cents per gallon. This last item amounted to over \$800, so you and your readers can have some idea how the American idea of protection benefits our own beekeepers. Were that duty taken off by our Government, a few score of our experienced American apiarists could and probably would supply the markets of the States with cheap Cuban honey in a very short space of time. Our former year's crop was sold in bulk to friend Muth, in Cincinnati, he paying prices according to the different qualities.

A large part of the honey produced in Cuba goes to Antwerp, Belgium, where, I am told, it is used in making a certain grade of wine, and where the demand is able to absorb all honey raised in Cuba, but at a price less than is obtained by our beekeepers at home. I do not know any thing about the correctness of this information. A great deal of honey is shipped from here to New York, and re-shipped direct from there to Antwerp, if the market in New York will not warrant paying duty and selling there.

In the third paragraph of the second column, on page 584, you will find your question as to quality already answered. The hive on the scales was only an average colony; that is, it gave about 125 lbs. of honey, which is what the entire apiary, weak and strong, averaged, while some of the best colonies in the apiary gave about $2\frac{1}{2}$ times as much, and, of course, their record, if on scales, would have been about 16 or 17 lbs. on the best days. Mr. Manum's record was probably from one of his very best hives. In studying conditions, etc., I prefer to use the record of an average colony instead of either an extra weak or an extra strong one. I think we are then more apt to reach just conclusions. This is the mistake that has been made here in Cuba, taking into account the work of only the strong colonies in an apiary, instead of estimating from the entire apiary.

Excuse me, friend Root, for smiling at your question about irrigating; but I presume you had California in your mind when asking it. So far as

rains are concerned, Cuba is almost the direct opposite of California. There, not a drop falls for several months during the summer, and no large quantity during the winter. Here, rains come and floods descend, I might almost say daily, during the six hottest months in the year, and the wish is for less irrigation instead of more.

Yes, friend Root, GLEANINGS comes to a spot right here where bees gather honey every month in the year. Last summer, during the short period, notwithstanding our 400 colonies in one locality, nearly 20 of our colonies gathered their own supplies, sufficient to keep brood-rearing going in at least 8 or 10 frames each, and gave from 3 to 5 lbs. of surplus honey each month to their weaker neighbors. With a small apiary of, say, 50 to 100 colonies, I have no doubt but that a small amount of honey could be extracted every month in the year. Bees fairly roar on blossoms of the "royal palm" for half an hour each morning during this the shortest season for honey during the year.

Cuba contains nearly 46,000 square miles—some 6000 more than does the State of Ohio; and from all I can learn, I judge that nearly or quite all of the island will average as good for honey as does this locality, some places better. As we can calculate on a steady annual yield here of from 40,000 to 60,000 lbs., a few moments' calculation will show any one what an immense factor in the world's markets Cuban honey would become were all trade restrictions removed. It will be well for our people to ponder these facts whenever the question comes up of removing our protective duties.

Havana, Cuba, July 31, 1889. O. O. POPPLETON.

MORE ABOUT THAT BEE-DISEASE IN CALIFORNIA.

SOME GOOD HINTS FROM ONE OF LARGE EXPERIENCE.

IN the issue of July 15th, page 583, Mr. W. A. Webster warns the Ventura Co. bee-keepers of the new bee-disease. I am sorry to say that we have had it here for several years, but it has caused no serious apprehensions until recently. There are but three apiaries in the county that have suffered much loss from it as yet. I know of no colonies dying out entirely from it, except in those three apiaries; but they have lost several hundred colonies.

This disease appears every spring and summer, in a very few hives in nearly every apiary in the county; but it has caused no serious alarm until recently. The bees usually get over it themselves; but we do not get much honey from the hives that are so affected. A friend on the Ojai has been experimenting a little with the swarms that were thus diseased. He took the queen out and replaced her with another from a healthy hive. The disease entirely disappeared; and by putting the queen from the diseased hive into a hive that was perfectly healthy, it also became diseased in a very short time. This experiment was tried on only one or two hives in the same apiary. I will try to have others try the same experiment, and report. I have none so affected, or I would try the plan myself.

THE HONEY CROP A FAILURE.

The honey crop has been almost a failure here—only about 150 tons of honey in the county. That much, 150 tons, or 15 carloads, is a good deal of

honey, but we often have in this county 600 tons. Our crop is 32,000 lbs. Honey is selling here in Ventura to-day at 6¼ cts., in 60 lb. tins.

OUT-APIARIES, AND MOVING BEES IN CALIFORNIA.

I have just read C. C. Miller's "Out-APIaries No. XI," with interest. In California we do a great deal of moving bees. In the spring of 1888 I moved two carloads of bees to the Costac (near Newhall). One load was the apiary that I bought of R. Wilkin, on the Sespe—the one that you have shown in the A B C. The other was one of my own that I moved from Ventura. The entire lot was moved without accident, but I do not always get off so well, for I have had many pretty narrow escapes for myself and team.

SUGGESTIONS ON MOVING BEES.

If friend Miller will pardon me, I should like to make a few suggestions. First, always have the bolt or wrench that holds the doubletrees to the tongue loose, so that it can be jerked out instantly. Second, be sure that the neck-yoke is so arranged that it will slip off the tongue without catching, so that, in case of an accident, you can jerk out the bolt with one hand, hold the doubletree with the other, and get the horses away from the wagon right speedily. Third, if you drive four or six horses, as we do here, always have the leaders attached to the tongue with hooks, so that you can unhook the leaders and drive them out of the way without having to stop to unhitch all of the tugs. Fourth, use snaps on the lines, and everywhere possible, especially on the holdback straps on the thills, if you use a one-horse wagon.

Two years ago I was moving an apiary. We used six horses, and had about 85 hives on the front wagon, and about 60 on the trail wagon. One of the hives on the front wagon burst with the weight of so many hives on top of it. They were piled up six high. The hive burst so that nearly all of the bees got out; but we got the six horses unhitched and out of the way without any of them getting stung, and had no assistance but a boy 24 years old. What a scrape we should have had if we had not taken the above-mentioned precautions. Since I have been in California I have moved over 2000 hives of bees, and have had no serious accident. But I used to get into all kinds of scrapes when I first commenced to move bees. When Dr. Miller comes to California to move bees he will have to put the combs lengthwise instead of crosswise of the wagon, to get over our roads without having a general smashup.

L. E. MERCER.

San Buena Ventura, Cal., July 24, 1889.

Thanks for your additional information, friend M. The more I think it over, and compare symptoms, the more I am inclined to the opinion that this California bee-disease is something similar to the nameless bee disease described in the A B C book. The latter is always cured by the removal of the queen, so far as we have ever known; and you say that, in one or two instances already tried, the peculiar disease which has visited you in California yields to a similar treatment. I have written to friend Webster, asking him to send a few of the affected bees to Prof. Cook, who will doubtless give us further information in regard to it; also whether he considers it the same as the ordinary nameless bee-disease. Your suggestions on moving bees are good; and

friend Miller would, no doubt, indorse all of them, even to the last clause, were he in California.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HOW TO CURE CLOVER-BLOAT WITHOUT MEDICINE OR THE KNIFE.

I read with much interest the article on clover-bloat, by Prof. Cook, in *GLEANINGS* for June 15, page 488, and I was greatly surprised to hear him recommending the use of the knife "in severe cases." Now, I have never failed to cure a case of bloat, without either knife or medicine. I will instance one case. When I arrived I found the animal leaning against the fence (it was a milch cow), bloated apparently to the full extent the skin would hold, moaning pitifully, and wet with sweat, and in ten minutes after my arrival the bloat was gone and the cow was comparatively easy. My remedy is not original with myself, and is pretty generally known in some sections where I have been, and I have been waiting in the hope that some one more capable than myself would reply to the professor's article, and give

THE REMEDY.

Take a billet of wood, $1\frac{1}{2}$ to 2 inches in diameter (round is preferable), and 18 to 20 inches long. Tie a stout cord to each end; force it back into the animal's mouth, and tie the cords to the horns; if it should be without horns, put a strap around the neck to tie to. This prevents the animal from closing the gullet, and the gas will rush out of the mouth with a sound that can be heard for some distance. In severe cases it is well to give half a pint of melted lard after the bloat is gone.

Galion, O., June 22, 1888.

A. W. MUMFORD.

Why, friend M., what you tell us is astonishing, at least to me. I did not know before that such a thing is possible. As I understand it, the cylinder of wood is simply to prop open the jaws. In the absence of a cord or any thing of the sort, could not relief be given by simply grasping the stick in both hands, putting the arm around the horns, and holding it in place until relief comes? So important a remedy should surely be generally understood and widely published. Have others succeeded in a similar way?

CARRYING OUT CAPPED BROOD.

I am writing for a little information concerning my bees. There is something wrong that I can't account for. I got one of your A B C books, but that does not appear to treat the trouble. The bees are carrying out the brood just about the time the larvae are getting their legs and eyes, and they still have life in them. I will inclose one in this letter, to show you the size when carried out, and the brood-comb is apparently all wasting. It is in holes that I can put my fingers through in places. The comb appears to have a natural color for brood-combs. I have two colonies affected in the above way. They are both young swarms—one on the 15th of June, and the other on the 27th. They are from the same colony. Now, if you can give me any advice it will be thankfully received, as I should like to do a little in the bee-business. They

are the common bee. I intend to change them to Italians in the spring, if I can keep them over winter.

L. F. BINGAMAN.

Wilkinsburg, Pa., July 29, 1889.

There is only one thing we can think of, in view of the state of affairs you describe. We once left some combs where the moths could get at them. I think they were taken from the hives and left out a week or more in the month of June. Finally they were taken to the bees; but the moths had laid so many eggs in the combs that the miniature worms went to work in the larvae just as you describe. There was nothing for the bees to do but to tumble them out, even when they were alive and kicking. In fact, they were obliged to dig all through the combs to get the worms out. Some of these moth worms, however, were so small as to be hardly visible to the naked eye. Of course, when the worms were all hatched, the trouble was all over. Italian bees will prove a remedy—that is, if the matter has not righted itself already.

WHY DID THE BEES KILL THEIR QUEEN?

A neighbor of mine got me to divide his bees. Although it was late in the season, I told him it could be done, but he would have to feed them up. The colony was very strong, and good Italians. I looked the combs over once to find their queen, and missed her; then I looked the second time very carefully, and failed again. I thought she might be on the side of the hive, so I got an empty hive to set some of the frames in, so I could see her. I lifted out a few frames and saw a ball of bees on the bottom of the hive. I knew that the queen was in it. I called for a pan of water, which was soon at hand. I dropped them into the water, and they soon let go of the queen, but she was stung to death. The bees were very gentle, and as they were getting plenty of honey from the basswood you know that they were not disposed to rob. Could they just have been in the act of superseding her at that time? There were no queen cells in the hive, but plenty of brood in all stages. The queen was very prolific.

BEES BY THE POUND.

In selling bees by the pound, can you take the bees from one place and get the queen from another place and put her with the bees that are not her own, in the cage together, without the bees killing the strange queen?

NIMSHI NUZUM.

Boothsville, W. Va., July 29, 1889.

It sometimes happens that, when we disturb the brood-nest, the bees will commence balling their queen. They know that something is wrong, and in trying to locate the blame they pitch into the poor queen, and sometimes kill her, as in your case. But as a general thing, if you smoke the ball until dispersed, close the hive up immediately, and leave them alone, you will probably find the queen all right in a day or so afterward. Now, here is the point: Those who introduce their queens think they must look them over every four or five hours, instead of letting the bees release them by the Peet or candy plan. When the bees release the queen quietly, without any disturbance from the apiarist, they are much less inclined to sting her than if the apiarist himself releases her—an operation which

requires the pulling-apart of the hive and a general disturbance of the bees as a result. We try to emphasize to beginners to let the introducing-cage do the work itself. In regard to taking the bees from one hive and the queen from another, and mixing them in the shape of a pound package, we think the queen will be accepted in a majority of cases. Sometimes when we have had an untested queen that we wanted to send out with a pound of bees in a nucleus that could hardly spare the bees, we have made up a pound from three or four different hives, mixing the bees thoroughly together. After that we drop in the queen. We have never yet had a report that the queen in such cages was killed. It is simply carrying out the Doolittle plan. Ordinarily, the bees and queen should be taken from the same hive, as it is better not to take any risk—especially so as every shipper should guarantee safe delivery of a live queen, together with the pound of bees, to his customer.

AN APIARY VISITED BY A CYCLONE AND THEN BY A FLOOD; RECOVERY FROM THE WRECK.

Six weeks ago I almost made up my mind to write and tell you to put mine among the Reports Discouraging. Last January, if you remember, I wrote to you telling you of the cyclone playing havoc with our bees. Well, this time it is the flood. The flood of June 1st destroyed nearly all our bees (60 hives). A number of the hives were completely destroyed, and in the rest there were more than one-half of the bees drowned in each hive. If I had not made a boom of timbers around our beeyard, bees, hives, and all would have gone away. Before the flood, our hives were full of bees, and we were in hopes we should get a good crop of honey; but our hopes are blasted. To date I have taken about *fifteen pounds* of honey, and it will be about all we can get this year. But it is surprising how they have built up since the flood. All the brood, sealed and unsealed, in the hives during the flood, the bees carried out, and now the hives are full of bees again. Within a square of our place, nine houses, two large ice-houses, and two bridges, were carried away, besides a number of barns, etc. At one of the bridges fourteen persons were drowned. Newberry, my postoffice address, is a suburb of Williamsport, and I suppose you have read how Williamsport, has suffered.

FRANK W. LIGHTON.

Newberry, Pa., July 29, 1889.

HOW I GOT RID OF FERTILE WORKERS; FORMING NUCLEI, ETC.

Not having time to go through with any scientific operations to get rid of fertile workers, I continued to give them brood from other colonies as fast as I thought they could take care of it. After awhile the fertile worker ceased laying; they raised a queen from the brood given them, and she is now tending to business with "neatness and dispatch."

HOW BEES SPREAD THE NEWS IN A HIVE.

I took a frame of brood with the bees adhering, and put them in a hive by themselves. I put an empty frame beside the one with the brood, and then a division-board. Then I brought another frame and shook the bees into the new hive, and returned the frame. I fastened a queen-cell on to the frame that had brood. I knew the young queen was about ready to emerge, because when I put

the small end of the cell up to my ear I could hear her at work inside. Well, in an hour or two I went to see how they were getting along, and found them contented and happy. Quite a number of them were around the entrance, going through all the operations usually found when bees have established themselves and are contented.

While I was watching, a bee came out in a tremendous state of excitement. It rushed pellmell against the first bee it came to, then whack head-first against another, over the top of the next, until it had visited every bee around the entrance. In fact, its whole anatomy seemed to vibrate with excitement. This took place late in the afternoon, toward evening; and next morning I found the young queen on the comb. Now, Mr. Root, do you suppose that that bee was on hand when the young queen made her appearance and was carrying the good news to the rest of the bees? I wonder if she heralded the advent of that queen throughout the length and breadth of the new settlement; and I wonder if there will be as great rejoicings when she returns (if she does) from a successful wedding-trip.

ARCH. DUNCAN.

Wyoming, Ont., Can., July 27, 1889.

Giving plenty of brood in all stages of development to any colony having a fertile worker will sooner or later cure it. In fact, fertile workers are only the result of keeping the hive too long without queen or brood. I have never noticed the kind of behavior of the bees you describe, when a queen is hatched; in fact, I have never seen them make any demonstration of the kind unless it was when a laying queen was given them, or a comb of brood. Bees that are hopelessly queenless, and have been so for some time, will usually manifest their joy when either queen or brood is given them, and they manifest it in much the way you describe. The hatching of a young queen might, under some circumstances, produce such an effect. But, as I have said, I have never been able to see that the colony took much if any notice of such an event.

HIVE-LEGS IN BOWLS OF WATER; PALMETTO HONEY.

Every thing we ordered came, and there was no damage of any kind. I guess you wondered what we wanted with so many bowls. I have my hives on stands, each having four legs. The bowls are placed so that each "leg" stands in a bowl. The bowls are kept full of water. In some I put a little salt. The bees get water and salt as they need it, while the large ants can not get at the bees. I believe in shade, and have my six colonies under palmetto-trees, which are just commencing to bloom. The bees get a nice honey from it, something like white-clover honey, if I remember aright. I may send you a sample if I find a piece of comb of small enough size. When I send samples I like to send comb honey.

ORANGE-TREES.

I do not think orange-trees give honey every year alike. While the conditions were so that at Orlando a drop of honey could be seen in the blossom, I looked ever so often at them here, and at first imagined the bees were getting pollen; but by observing them closely I found they went home loaded with honey. Each bee visited quite a number of blossoms, and the trees "hummed" with the

busy workers. I also noticed some trees loaded with bloom which the bees scarcely looked at. The scrub-palmetto was a failure here this season. Just now bees are "at home," and cross.

MISS CLARA SLOUGH.

Daytona, Fla., July 22, 1889.

We did wonder a little what was to be done with the bowls, my friend, but it is all very plain now. Perhaps our three-cent bowls are the cheapest thing that can be furnished for this purpose. One objection has come up against their use in this way, and especially where they are used in hot climates — the rapid evaporation of the water; but to prevent this, the surface of the water has been covered with a layer of oil.

THE IGNOTUM AS EARLY AS THE DWARF CHAMPION.

Yesterday, Aug. 6, I picked my first Ignotum tomato, but at the same time picked one from both a Mikado and a Dwarf Champion, so that with me they are not proving any earlier than the others. It is a smooth tomato, weighing a little over a quarter of a pound, but I have others which will be much larger.

K. A. CLARKE.

Groton, Ct., Aug. 7, 1889.

Why, friend C., nobody ever claimed that the Ignotum is an early tomato, so far as I know. It was not intended for such; but notwithstanding, I did mention that the first tomato I had ripen in the open air was the Ignotum last season. Now another season has proved that it is as early as the Dwarf Champion, for which so much has been claimed. Our experience is like yours. Our first-ripe tomatoes were picked about the same day, from the three you mention, also from two others which I shall speak of in another column.

ANOTHER REASON WHY ONE SHOULD JOIN THE CHURCH.

Will you allow me to add one more thought to your four good reasons why one should join the church? It is a reason which would come with convincing force to every reader. It is found in Matt. 12: 30: "He that is not for me is against me; and he that *gathereth not with me, scattereth abroad.*" What will that sound like to the large mass of church goers—that the blessed Jesus himself explicitly declared that he considers every one who is not positively working under his standard as really working for the evil one? Just as in a harvest-field, one cuts the grain, another binds the sheaves, and a third gathers them into the barn, while the fourth, though he may be *in the field*, and even looking on with complacency, yet, if he is not *actually assisting* in the harvest, will not be entitled to the reward.

Mons, Va., July 26, 1889. A. H. VAN DOREN.

A GOOD SUGGESTION ON HOW TO BURN SULPHUR.

I put one or two pounds of lump or stick sulphur into an old cast-iron dish; set it outdoors on three stones, over a slow fire, to melt. While I am watching it I tear old calico into strips, a couple of inches wide and as many feet long; put some of these into the melted sulphur; and when they are saturated I take hold with pincers on one at a time, and raise it straight up to let it drain off. After a few seconds, when it is dry I throw it aside, going on in this way till the dish is wiped dry. For use, take one or two strips, according to your tight box or

closet; put into an old pan; fix a raised cover of another one to protect your goods close by; apply a match, and you will be surprised to see what a great smudge you can make with a minimum of sulphur and heat.

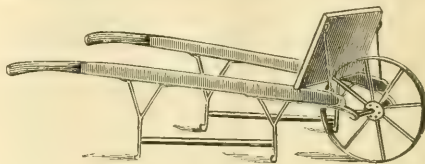
WM. GOLDSPOHN.

Lodi, Wis., July 29, 1889.

Your description reminds me of the way in which I used to see them fix their sulphur matches for brimstoning bees in my boyhood. I believe they did it exactly as you describe. But in this case is there no loss of sulphur from sublimation? or does it all get converted into sulphurous acid by burning?

HIVE BARROW—ANOTHER DEVICE OF H. FITZ HART.

Mr. Root:—In reply to your favor of July 2 I had forgotten to send you a drawing of my modified hive-cart. After sending you my idea that your artist so ably worked out in GLEANINGS of May 15, I chanced to see an old wheelbarrow, something of the pattern of your Daisy. I knocked out the bottom, put on two more legs, as shown, nailed a horizontal piece $2\frac{1}{2}$ inches from the ground, on the legs, in such a way that it would be level when the



barrow was being wheeled. To use it, I run it up to the hive I want to move, and drop it over; then I put a stick on the side-pieces, at each end of the hive, under the bottom-board. For use when taking out frames for extracting, I put a board on the two side pieces, and then pile my hives of full or empty frames on that. If made with two wheels instead of one I think it would be one of the most valuable articles about the bee-yard, especially where one is working 150 hives single handed, or has to move them in and out of the cellar.

Avery, La., July 6, 1889.

H. FITZ HART.

Very good, friend Hart; but we do not quite see what will hold the handle-bars of the barrow rigid. Is there not a liability of their wobbling sidewise, as you have represented it? On a good many accounts we think your hive cart illustrated on page 410 is better.

REVERSING OF HIVES AND SECTIONS; A CALIFORNIA APIARIST CONSIDERS IT.

I am greatly interested just now in some kind of a reversible frame or hive, or both. I have had a great deal of trouble this season to get the bees to go into the T supers to work in the sections. They would fill the lower part of the hive nearly to the bottom-bars with honey, and then laugh at me when I would look into the super to find it entirely empty. I fastened the frames in two hives so that I could reverse the whole hive. One of the colonies thus reversed took immediate possession of the super, and filled the 28 sections in about one week. The other did not go above after being reversed until I put on a super that was partly filled; then it went to work in earnest. I think that, if I could have reversed about 100 hives at the same time, I should have now several hundred dollars' worth of

comb honey. R. Wilkin has one of the Shuck reversible hives, which I have been examining. I think I should like it as a brood-chamber, to be used with the T super. Where can I get a few of the castings for the Hetherington reversible frame, shown on page 514? I wish to get as many reversible hives as I can this winter, and then select from them the one that I consider the most practicable for comb honey. I think it will be a long while before we get a more convenient hive for extracting from than a common L. hive. L. E. MERCER.

San Buena Ventura, Cal.

I am exceedingly glad to see you give the above testimony in regard to the benefits of reversing. The same thing came up a year or two ago. But so many of our good bee-men have abandoned the reversing business entirely we were almost inclined to think it was a mistake. Very likely many of them never tried it. You ask why we do not try it here. Well, the truth is we seldom have our hives so crammed and loaded with honey as they do in places where there is a greater honey-yield, or where there are not so many colonies kept in a place. I think, friend M., if I were you I would experiment a little more before going largely into reversible hives. Our friend E. H. Cook, of the *Bee-hive*, says he always regarded the reversing craze as a "harmless lunacy." Will he try it a few times and see what he thinks of it? Perhaps he has; if so, we will take it all back.

A DEAF AND DUMB BEE-KEEPER.

I have been keeping 7 swarms of bees. I am deaf and dumb. I learned to handle bees about 3 years ago. I can tell signs of bees swarming out of the hives. I can't hear any humming, but my eyes see. I watch them every morning. I study your A B C of Bee Culture. I should like to keep a good many swarms of bees. Last week I took 35 sections of white honey. I expect to take about 75 more this week. EDSON HULETT.

Pawlet, Vt., July 22, 1889.

We are glad to hear from you, friend H. We have at different times had quite a few bee-men on our list who were deaf and dumb; and, strange to tell, they are almost always good bee-keepers. What they lack in hearing, they somehow contrive to make up by sharp seeing.

SWARMING OUT, AND FORMING THREE CLUSTERS.

Quite a large swarm came off from my Heddon hive (I have only one of them) three weeks ago last Sunday morning, and settled in three separate clusters on a small peach-tree. I hived them all, in one hive, a one-story chaff, and they went right to work and have been doing well. How do you explain three separate clusters from one swarm?

Indiana, Pa., July 23, 1889. W. B. MARSHALL.

Very likely there were three queens, one in each cluster, and two of them, no doubt, were virgins, which went out with the swarm. The circumstance is nothing unusual.

REMINGTON'S PHARMACY; MORE GLUCOSE NONSENSE.

On pages 675 and 676 of Remington's Pharmacy the following is found. I give it verbatim, and you can draw your own conclusion, and remark there-

from: "It is not known whether honey is secreted by the bee or whether it exists ready formed in plants. The nectaries of flowers contain a sweet substance which is extracted by the insect. Large quantities of honey are obtained from California, the Southern States, and the West Indies. A still larger amount, however, is manufactured by flavoring and coloring artificial glucose." * * * "Owing to the difficulty of obtaining pure honey in large cities and towns, its place in many official preparations has been filled by substituting syrup or glycerine." GEO. F. WILLIAMS.

New Philadelphia, O., July 22, 1889.

That is the kind, friend W. Pitch into the cyclopedias and pharmacies, and dig up all their false statements. And now let us all go for the publishers. Can you not give us the address of the publishers, and the date when it was put out? The closing sentence is pretty cool indeed. Will the pharmacy please tell us the name of the city or town where pure honey is not to be had every day in the year, and in any quantity? If our cyclopedias and such like books of reference are going so much on the Rip Van Winkle style, they will soon find that our progressive American people will leave them high and dry on dusty shelves, unused and uncared for.

REPORTS ENCOURAGING.

Plenty of honey; from 14 to 31 colonies, and 800 lbs. of honey; best ever known here.

Thornville, O., July 26, 1889. GEO. BEAGLE

I started with 19 colonies and now have 43. Have taken off 600 lbs. of section honey.

Little Rock, Ill., Aug. 5, 1889. JESSE BRADY.

I have 12 colonies of bees. They are doing finely. Honey is only 8 and 10 cts. a pound for the best clover.

NEWTON NIXON.

Olds, Iowa, Aug. 6, 1889.

We had 43 colonies in the spring, which have increased to 70. Though the season has been very dry, we have extracted a little over 3600 lbs of honey, chiefly clover and basswood.

FANNY POND.

Bloomington, Minn., July 30, 1889.

NO LOSS FOR THE LAST FOUR WINTERS, AND HONEY COMING IN AT THE RATE OF 5 LBS. PER DAY, ON THE SCALE HIVE.

You will have to put me in Reports Encouraging. I have wintered in the cellar four winters without the loss of any bees. I had 17 colonies, spring count, for 1889, and have had 15 new swarms. I use the Heddon method of hiving on the old stand, and do not have any after-swarms. My hives were full of honey when set out of the cellar, and have continued so up to basswood bloom. They put in a large amount of honey from the basswood, which closed a few days ago; but the honey-flow still continues from other flowers. My scale hive indicates about 5 lbs. per day, of fine white honey. The honey-flow will continue here until frost comes. One swarm came out, and it left without clustering. I followed them to a hollow tree, about half a mile. I have Italians and hybrids. The Italians are the best honey-gatherers with me.

J. ROUSE,

Camden, Minn., July 27, 1889.

THE GREATEST HONEY-FLOW EVER KNOWN.

There has been the greatest honey-flow this year I have ever seen since I have had bees. I divided mine early, and both parts got strong, and swarmed. I started with 60 colonies, and increased to 130, and have taken over 4000 lbs. of honey—one-third comb, the rest extracted. The clover is still fair, with a good prospect of a full crop.

GEORGE BRIGGS.

New Sharon, Iowa, July 28, 1889.

ENCOURAGING FOR COLORADO.

This is the finest season for crops ever known in Colorado, and promises to be fine for honey. There are great fields of alfalfa, and it is being raised more and more, and very fine honey is made from it. Colorado promises to be a great honey State. Henry Knight, an extensive bee-keeper ten miles from Denver, sold six tons of honey last season.

Denver, Col., July 24, 1889.

J. L. PEABODY.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 139—*a. Do you let the bees supersede the queen naturally? b. Or do you think it pays to supersede, as a rule, yourself, say in one or two years?*

a. No; b. Yes.

A. E. MANUM.

a. Generally; b. Yes, if she shows signs of failure.

S. I. FREEBORN.

a. Generally I do. b. That's an unsettled question with me.

C. C. MILLER.

a. Not as a rule. b. It pays, because you can select your breeding stock.

RAMBLER.

a. Yes, unless I have a poor one. Then I do the superseding.

A. B. MASON.

a. Yes, unless the queen has ceased to be prolific. b. I don't think that superseding queens pays, as a rule.

C. F. MUTH.

I always let the bees do the superseding, as they know best when to do it.

PAUL L. VIALLO.

a. Very often we do. b. But it pays well to supersede, in all cases, yourself.

P. H. ELWOOD.

a. Yes. b. As a rule, I think it pays better to let the bees do their own superseding. They can do it cheaper, and with fewer mistakes, than I could.

J. A. GREEN.

a. I have usually left this to the bees; b. I shall look after it more in future. I believe it will pay to do so, if we can manage it so as to lose little or no time.

A. J. COOK.

a. No, not as a rule. b. Yes, I think it pays for us to take this business into our own hands. For a fuller answer to this question see article in GLEANINGS for 1888, page 525.

O. O. POPPLETON.

a. Yes, if they do so in time; b. When the queen begins to play out, and the bees do not supersede her, I kill her, and either supply the colony with another or let the bees raise one.

GEO. GRIMM.

In conducting large apiaries I think it pays best to leave this matter pretty much with the bees.

H. R. BOARDMAN.

Let the bees do it, as a rule, unless you notice that a queen is failing, when it is a good plan to replace her.

DADANT & SON.

a. As a rule, I do; but many times, when I find a queen is faulty in some respect, I supersede her; b. I should not supersede a queen that was a good layer and her progeny docile and good workers, even if she were three years old.

MRS. L. HARRISON.

a. Generally; b. Not unless I wish to change the strain of bees which certain colonies have. There are very few colonies indeed in my apiary which I could benefit by taking this matter into my own hands, as the bees know their wants along this line much better than I do.

G. M. DOOLITTLE.

My practice is to let the bees attend to that matter. I think they know rather better than I do when a queen needs superseding. Yet the practice of superseding, at two years old, all queens not known to be specially excellent, seems to commend itself as a sensible plan.

E. E. HASTY.

a. Yes, in many instances. b. Were I running an apiary exclusively for queen-rearing, I think I should do the superseding myself; but in running for surplus honey I should let the bees do it, except in a few instances here and there, when I happened to blunder on to the necessity, and had every thing in readiness to supersede with.

JAMES HEDDON.

a. Sometimes we find that a queen is not doing good work, then we kill her and give brood from some other good colony, and let them raise a queen. But as long as a queen is doing good work we don't destroy her. b. I think it pays to supersede a queen when she doesn't do good work, regardless of her age; but I would not supersede a good prolific queen on account of age. Let her remain as long as she does good work.

E. FRANCE.

a. Ordinarily I let the bees supersede the queens themselves; but if their merits are in any way doubtful, I kill them. I started cropping, intending to kill all two-year-olds; but I am thinking they will not give me a chance. In March, 1888, I cropped the left large wing of 283 old and young queens; in March of this season, only 80 of those queens were left, and I think that more than half of them are gone now. I am inclined to think that bees are more reckless of queens in California than in the States east. b. It will take a little more experience to decide about the paying.

R. WILKIN.

I am inclined to think there would be more superseding than there is if it were not so much bother, especially where there are large apiaries and out-apiaries besides. A great many start out with the determination to supersede every queen that is not first-class, as soon as she is discovered; and after awhile it becomes too much of a task to keep track of them, and, like Hasty's book, is abandoned. Most bee-keepers I visited, however, promptly replace poor queens when they come across them; and in several places, by asking questions I found they were in the habit of superseding queens where the bees were very cross, even though they produced good crops of honey.

QUESTION 140.—*a. What is the longest time you have known a queen to give good service? b. How long will queens usually give good service in the hive?*

- a. Five years; b. Two years. A. J. COOK.
 a. Three years; b. Two years. S. I. FREEBORN.
 a. Four years; b. Three. DADANT & SON.
 a. Three years; b. I think two years, on an average. E. FRANCE.
 a. Between four and five years; b. Three and one-half years. JAMES HEDDON.
 a. I have had some for four years. b. Usually two years. PAUL L. VIALLO.
 a. Four years. b. Not over three years, and very often not over two. J. A. GREEN.
 a. I hardly know; but I think not to exceed 3½ years; b. Three years. GEO. GRIMM.
 a. Almost four years. b. They are often as profitable as the best, in their third year. C. F. MUTH.
 a. If no mistake has been made in my entries, five years. b. Perhaps two to three years. C. C. MILLER.
 a. Five years; b. Two years. Usually, a queen hatched in June or July will be in her prime the next season. A. E. MANUM.
 a. Four years. b. Queens carefully bred, three years; but as a rule, I try to have queens not much over two years old. RAMBLER.
 a. Four seasons. b. For two full honey seasons. I am inclined to think, that here in Cuba not more than one full season. O. O. POPPLETON.
 a. Five years. b. Good queens, two years; the best, three years, if not crowded too hard, and two much hardship in wintering. P. H. ELWOOD.
 a. Four years; b. For two years; some, perhaps a half, for three years. I think that most begin to fail "a leetle" the third year.

MRS. L. HARRISON.

I doubt if the average queen can be made profitable more than three years; and I think the most useful period of their lives is spent in two years.

H. R. BOARDMAN.

a. Five years. b. With me, two years usually, although one of the best colonies I now have has a queen three years old, and is now better than ever before. A. B. MASON.

a. Five years; b. The average life of my queens is not far from three years. If they do not do good work, the bees find it out and supersede them, this being done with some in the second year, and not till the fifth year with others. G. M. DOOLITTLE.

a. Years ago, while living in Cadiz, O., I got a queen from Italy. I do not know how old she was when I got her. I kept her three years, and sold her, with the colony she was in, for \$15.00. The purchaser, the next season, had her stolen from his hive, so we lost the run of her. While I owned her she had one wing off, one leg off, and the foot off another leg, yet hobbled around and laid as many eggs as any queen I had. b. I should be inclined to consider queens good for three years, in the East, and for two years here. They get to rest more in the East. R. WILKIN.

As I neither clip wings nor raise queens for sale, nor run many colonies for extracted honey, my facilities for knowing the age of my queens are much less than usual. The long period that sections are on, where surplus comes in in September, as well as

in previous months, is a serious bar to knowing when queens are superseded. When I began bee-keeping I got a blank-book and entitled it "Queen Ledger," and was going to have the life history of every important queen all down in black and white. But somehow or other the thing didn't run well, and not a record in the book would be of any value if published. E. E. HASTY.

I am surprised to find that so many report having had queens that would do good service for four or five years. In regard to superseding queens, I once had a queen that I thought did not lay up to the standard, so I took her out of the hive and gave her to a friend who happened to be there. She was a fine Italian, and her bees were beautiful, and good workers. But the colony had been weak so long that I decided it was her fault. My friend, however, put her in a strong colony, and afterward decided that she was one of the best queens he had, even though she was in her second year. This incident has led me to be more careful in deciding too hastily that a queen ought to be superseded.

THE OLD GERMAN BROWN BEE.

BY W. P. HENDERSON.

How sweet to our taste was the honey of childhood,
 When corn was in tassel and robbing time came!
 The honey from linden, from poplar, and red-bud,
 From clover and vervain, was sweet "all the same."
 The long line of gums, and the bark shelter o'er them,
 The big roll of rags, and the buckets hard by—
 The neighborhood old folks, with cob pipe and long stem,
 And e'en the old black bee which stung near the eye.
 The wicked old black bee, the old native brown bee,
 That stinging old black bee that closed up the eye.
 Such nectar! such sweetness! oh, who but a laddie
 Could relish such chunks as they passed to and fro?
 For bee-bread and larvie were mixed just as cut from
 The top of the gum to the cross sticks below.
 The mead and metheglin, and cherry-tart pies!
 Oh! who in his raising e'er wished or asked more?
 Come back, ye old times, and enliven our dotage,
 And give us the bee and the honey of yore—
 The thick linden honey—the honey-dew honey,
 The rich candied honey and stinging brown bee.

How fondly we cling to and cherish the mem'ry
 Of hollow elm gums and the comb they contained!
 Of piggins and pails full, stored by in the pantry,
 And boiler with wax through the old meal-sack strained.
 Alas, what a change! now with sections and sling-
 ing,
 And fancy-marked bees from beyond the broad sea!
 No swarming, no tin pans to gladden life's evening,
 We sigh for the ugly old German brown bee.
 The old stinging workers—the brown colored workers,
 The dark-colored, homely, old spiteful brown bee.

Murfreesboro, Tenn.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

HOW ALBERT MADE A NUCLEUS.

I had one stand of bees myself. When papa was extracting honey he would cut off the queen-cells and throw them away. I picked them up. I gathered young bees off the ground, and put them in a box, and the queen hatched out and became fertile. Papa extracted 120 lbs. of honey from my bees last year. ALBERT DEGLANDON, age 9.

McDade, Tex.

BIRDS AND DUCKS.

I do not know much about bees, so I will write about birds and ducks. There are many different kinds of birds. A little speckled bird has a nest in a small tree in our yard. There are four little birds in the nest. The old bird is very tame, and comes close to the door and eats the crumbs we throw out. We often throw crumbs out for them. Several years ago we had some ducks and a fish-pond. In the summer the water got low, and the ducks worried the fish to death. We sold the ducks and have raised none since. IDA HOWER, age 12.

Macy, Ind., July 7, 1889.

WHAT A LITTLE GIRL THINKS OF THE SERMON OF JULY 15.

I think the sermon of July 15 is good. I think that Christians ought to join the church as soon as they are converted. I joined the church when I was 11 years old, and I never have regretted it and never shall. I intend to live for Christ as long as I live. A protracted meeting begins at Dyer to-night, and I hope we shall have a revival of religion at this place. The county Sunday-school convention will be held at Dyer this month. I am very much interested in Sunday-schools, and I wish to attend and learn something if I can.

Dyer, Ark.

ROSA MANUEL, age 14.

BEE-KEEPING IN FILLMORE CO., MINN.

Six years ago my father got two colonies of bees, and now we have 115. Mr. Shaw, one of our neighbors, had a colony of bees that swarmed three times in three days. Did you ever hear of such a thing? People say they never saw so much white clove as there is this year. There is a large number of runaway bees this year. One of our neighbors had a swarm of bees go into his barn, and another swarm went down the chimney of his house, Do

you think bees are deaf? Most people think bees can hear, but father says they can not. My brother found a swarm of bees at one of the neighbors'. He helped put it in a box, for they had no hive, and the last we heard from them they were doing nicely.

PETER H. SEVEY, age 12.

Preston, Minn., July 22, 1889.

Yes, friend Peter, bees will swarm three times in three successive days; and if the queen's wings are defective this is nothing unusual. Tell your papa that those competent to know think bees can hear. We all have good evidences of it.

THROWING WATER AT SWARMS.

When our bees swarm we throw water at them, and they settle. We put salt water in the hive, and they go in.

HATTIE FORREY.

Harrison, Kan., Mar. 30, 1889.

Water is a good thing to bring down swarms, but salt water, we feel sure, has little to do with making the swarm accept the hive.

PAPA'S BEES; THE NICE WHITE SECTIONS, ETC.

Papa has about 50 stands. We have had about 9 swarms this summer, and could have had more if we had wanted them; but papa cuts out the queen-cells, and that stops the swarming. He uses the Simplicity hive, and he thinks it is the best. He also uses the yucca brush when extracting. I like the little white sections you send us, when they come out of the hive, full of nice white honey.

Papa has taken the premium at the fair, and everywhere he has exhibited. He took out about 4000 lbs. of nice honey last season. He has the A B C book, and I like to read it very much.

Reno, Nevada.

FLOSSIE MOORE, age 10.

PAPA'S BEE-CELLAR.

Pa moved all his bees, about sixty hives, two miles, a year ago last December, and put them in a new cellar under our new house, which looked nice and clean, with a cement floor. During the winter the cellar got awful damp and cold, nearly freezing. We did not move to the new house until March. About two-thirds of the hives were dead by the middle of May. We had no honey last year. Pa fed the bees on white sugar syrup last fall. We have a furnace in the cellar where the bees are this winter. Pa has a thermometer hanging on one hive, which stands about 47° or 48°.

FLORENCE M. HARTMAN, age 10.

Woodbridge, Ont., Can.

BEES IN GERMANY.

The last report I have had from Germany, bees are doing well. They are gathering heather honey at present. Heather honey is about the best, and it blooms for a long time. This honey is sold in the comb, as it can not be extracted. The hives papa sent out with mamma are now filled with bees. Bee-keepers from all around have been looking at our hives, etc., in our German apiary.

To-day papa bought a large swarm. It cost about \$2.00; but he gave a smoker and an A B C book for it. Do you think it is worth it? Our bees are filling up boxes very fast. We had a lot of weak stocks which we united, and papa thinks that honey will bring a large price next fall. In GLEANINGS of July 15 I noticed that the price of extracted honey was 7 cts. per pound. We sell all our honey at

25 cts. per pound in New York, and have no trouble in getting this price. ANNA BLANKEN, age 12.
Jersey City, N. J., Aug. 1, 1889.

A TALK TO THE CHILDREN.

A LITTLE WOOLLY-HEADED BEE-KEEPER AWAY
DOWN IN LOUISIANA.

I HAVE been thinking a good deal about the juveniles of late. The way it came about was this: I took out the head of a barrel that A. I. Root had sent us, containing honey, cases, etc. It was the pretty nails, that I drew out with the hammer, that pleased me so much. How smooth and bright, and how nice they felt to my fingers—so different from the rough ones I have been accustomed to handle! I hope that you will enjoy wire nails as much as I do. These nails made me think of what an old man once said to me: "My old days are my best days. When I was young, and we lost the fire, what a time we had to kindle it with flint and tinder-box! and now we can so easily strike a match!" I remember one of my cousins telling me that their fire went out, and they lived in a new country, far from neighbors, and that her "daddy" had to fire a gun into some shavings to kindle it. What I was thinking about, children, was this: That you are going to live in a yet better age than we are now living in. I thought about it as I sat in my rocking-chair and whacked together the pretty one-piece sections. How different our honey is from what I used to eat, taken from log gums, after the poor bees were smothered with burning sulphur! It tasted mighty good, though; and, didn't we have a licking good time for awhile, although the comb was black, and honey mixed with bee-bread?

We enjoyed ourselves just as much as you do now, and I sometimes think more, in going to school in log houses, carrying our dinners, and building playhouses at noon, visiting one another, and treating with sumac berries passed around on broken dishes. How delicious they were after frost! I was a child on the frontier, and there were no apples but crabs; wild strawberries had a better flavor than any tame ones I have ever tasted, and plenty of blackberries and plums.

By the way, I had a letter lately, from a lady away down in Louisiana. I got acquainted with her at New Orleans when I was at the bee convention, during the Exposition. Here is an extract: "I am a raiser of orphan children. I have raised five—three are with me now—one white and two negroes—all bound to me, as that is the terms of our taking them, in this State. I have had but one girl in the lot, and she is with me now. I have two boys of my own, and one white orphan boy. They are smart, industrious boys; but the little negro boy is a treasure. He is twin with the girl I have, but smaller and frail. They are both as black as coal. The boy is my right hand in the bee-yard. He is neatness itself, and keeps my things all in order. The white boy and he do the marketing together. They are each about ten years old."

Children, how many of us have as good a reputation as this little African? Wouldn't you like to see him in the apiary, with his woolly head? I should. I wish Mr. Root would get his picture, and put it in GLEANINGS, and the apiary with its beauti-

ful Southern flowers, pomegranates, and figs. Don't you?
Peoria, Ill.

MRS. L. HARRISON.

Thanks, Mrs. Harrison. We have enjoyed your talk very much. It would afford us great pleasure to make an engraving of the little woolly-headed bee-keeper, and the apiary with its beautiful Southern flowers, pomegranates, etc. Just tell your lady friend in Louisiana to procure a photograph, at our expense, and have the same forwarded direct to us. We should be glad if she would also give us a short item to accompany the engraving.

OUR HOMES.

And Jonathan caused David to swear again, because he loved him: for he loved him as he loved his own soul.—I. SAM. 20: 17.

ONCE in a while we see friendships among men, somewhat like the friendship of David and Jonathan, as expressed in our text. At least, a few times in our lives we meet with those in whom we have such perfect confidence that nothing can shake it. There is a class of people who seem fond of telling that even such friends have been proved false; but I do not believe it. Whenever you meet a man who seems always rehearsing the frailties and wickednesses of his brother-men, be a little slow in giving him your confidence. The one who sees evil in his fellow-men, very likely judges others by himself. In my business relations I have found a good many in whom I have such perfect confidence that I should have no hesitation whatever in giving them my pocket-book, telling them to use what they like, and I should never care to count the money afterward to see what they took. Their word would be just as satisfactory, or more so, than an inspection of the pocket-book. While it is true, that we ought to be careful about putting so much confidence in anybody, and while we do best, perhaps, to wait till years have tested and tried our friends, I think we ought not to be backward in recognizing and accepting the good that is in our fellow-men, when we find it. So much for a preface to my little story.

After I had visited the bee-keepers of Boscobel, Wisconsin (as I will tell you about elsewhere), I was on board the train again for Richland Center, the principal point of my visit. Part of the trip was to be made on a caboose car attached to a freight train, and it got along rather slowly. In my pocket was a letter from a friend at Orion, Wis. In mapping out my trip, however, I decided—or, rather, Ernest and John decided for me—that I could not very well make Orion without considerable delay. Below is the letter I have been speaking of:

Brother Root, Dear Sir:—Here I come, with an invitation to you to come and see us at the Riverside Bee-farm when you make your visit to friend Freeborn and our great basswood belt. Come, brother Root; come, if you can. I will lend you my Bible while you are here, to read. I will sit down and hear you read and explain; in fact, all you have to

do is to ask and you shall receive all within my power. I will meet you at Muscoda; bring you home to breakfast, dinner, supper, or even your noonday sleep; show you the beautiful valley of the Wisconsin River for miles and miles, by taking a small walk up on the bluff. I would make you as happy as I could while you are here. I would take you back to the station, bid you good-by; and then if my dear wife were alive and could have enjoyed your visit I should have been the happiest man living, having seen A. I. Root, of Medina, Ohio. My prayer is, and shall be, that it is the Lord's will that I may see you.

F. L. SNYDER.

Orion, Wis., June 15, 1889.

You may be sure I read the above letter several times, and it was with much regret that I made up my mind to forego such a kind invitation. For one thing, I felt curious to know why an entire stranger should so greatly desire to see me. I felt a little surprised, too, at the devout tone of the letter, expressed as it is in humble phrases. I decided I had never met *exactly* such a man as the writer. Well, while I was on that freight train waiting for them to unload and load at each station, I happened to listen to the conversation of a couple of men sitting on a pile of lumber near the track. One of them happened to speak the word "Orion." I at once stepped from the car, and, approaching him, said:

"Will you excuse me, sir? but you just now mentioned the name of the town of Orion. Will you please tell me how far distant it is from this point?"

"Why, it is only the matter of a mile and a half or so, just over the river;" and he pointed over his shoulder with his thumb, and went on with his talk.

Only a mile and a half from the man who wrote that kind letter! It was already near sundown, and I had bought my ticket to Richland Center; but as I looked along the sidewalk in the direction he pointed, the temptation to exchange the dusty freight car for a walk on foot was too strong to be resisted. Perhaps I am a little dull, but I did not remember at the time that the name of the town where we were stopping was Muscoda, the very place that friend Snyder mentions in his letter. Never mind the name of the town. I was within a mile and a half of the good friend who wrote that letter, and that was enough.

"All aboard!" shouted the conductor; but as I did not respond to his call, he spoke again.

"Here, you man, get on board quick."

I replied that I had decided to stop where I was.

"But you have paid your fare to Richland Center. If you want to go there, get on quick, for we haven't any time to lose."

I thanked him, but started off along that sidewalk that seemed so enticing, with its pretty shade-trees illumined by the rays of the declining sun. Before leaving home, my wife gave, as one plea to be permitted to stay, that I would always be pushing off into the country, or going off crosslots on foot; and then a woman—even such a one as her dear self (she did not say just that in 80 many words, but she knows very well

that no companion on earth is so pleasant to me as her own *dear self*) would only be a hindrance. Well, this was just one of those places where I enjoyed the liberty of going where I pleased and doing just as I pleased. There were livery stables, doubtless, in Muscoda, but I would not have exchanged the prospect of the walk in the evening, along that street, for the best livery rig that could have been furnished just then. Before I had gone many rods, however, it occurred to me that, if my good wife were present, she would have spoken something as follows:

"Now, look here, dear husband, you certainly should go to the hotel and get your supper before you go into that household and surprise them, and possibly upset them, by coming unexpectedly. Your good friend spoke of his *motherless* home. You can forego the livery if you choose, but get your supper first, so as not to make trouble."

I took my wife's advice—I mean the advice she would have given if she had been present. And by the way, friends, I have got much into the habit of late years of asking myself what my *wife* would do or advise under certain circumstances. So, very likely a great part of the credit you have given *me* at different times justly belongs to *her*. I had a very nice supper; and I enjoyed it the more because a nice pleasant gentleman sat at the table with me. Now, a good many people go through the world, especially while traveling, without talking. You can do as you please, of course; but I think we ought to get acquainted. Perhaps you have heard me say something of the kind before. Of course, I asked my companion at the table about the town of Orion, and whether he knew Mr. F. L. Snyder. After a little explanation he said he knew him. Then we talked about bees and other things. Several times I felt a little surprised that my companion seemed to get the hang of things as he did; and at the close of the meal he put out his hand and said something like this:

"Mr. Root, I am exceedingly glad to have had the pleasure of even twenty minutes' chat with the author of the A B C of Bee Culture."

He smiled a little as I replied:

"Why, my good sir, I have not even told you my name; and as you are not a bee-keeper yourself, what should you know of the A B C book?"

"Well, it is true I am not a bee-keeper, and never have been; but notwithstanding, I have read the A B C book, and enjoyed it. I wish you much pleasure in your visit among the bee-men of our State of Wisconsin."

It was now so late that I walked off hurriedly. The town of Boscobel seems to have been drawn out toward the river. We found pleasant residences and churches, and other fine buildings, for almost a mile; then we came to a toll-gate and a great long bridge. It was not a railroad bridge, but just a bridge for pedestrians and vehicles. And now burst on my gaze for the first time the Wisconsin River. Just as the sun

was disappearing I reached the further shore, and a little further on I reached the town of Orion, resting on the banks of the Wisconsin. The banks were grassy, clear to the water's edge. The waters were pure, and as clear as crystal, while many beautiful islands dotted the stream here and there. Now, I want to say, that, although I have seen many beautiful rivers in my travels, north, south, east, and west, I have never met any sight so entrancing as the Wisconsin River as it appears from the town of Orion. Seeing a group of men near the postoffice I approached them. As I came up I gathered that their conversation was about buckwheat. I smilingly broke in upon them, and asked if it were not likely there was a *bee-keeper* among the number, judging from their topic. Almost the first person I addressed proved to be Mr. Snyder. As he introduced me to the doctor I spoke to the little crowd something as follows:

"My friends, has it often occurred to you that you ought to thank God for the surpassing beauty that is spread out here before us around your home?"

The doctor replied:

"Mr. Root, the man who has lived to the age that most of us have here, and who has neglected or forgotten to do so, would be long and base indeed."

I love that village doctor, and always shall. A few more steps, and friend Snyder showed me his home. It is right on the banks of the river, directly opposite one of the most beautiful islands. The pasture lot for the cow is right on the hillside, sloping toward the river. Said hillside is so steep that I suggested to friend Snyder that I should be afraid the children in their plays might roll down into the river. But he said they never did.

After my walk I felt a little thirsty. I had planned to hunt up a glass of lemonade somewhere in the town, before going to friend Snyder's; but I came on him so suddenly that I did not have time. When, however, I invited him to go with me and get some lemonade he replied:

"Oh! we have lots of lemons at home, and nice cool water. Just see if I can't fix you up some that will fill the bill."

My wife says my only excess in the way of drinks is lemonade. And if she had not seen me drink a whole pitcherful after the labors of a hot summer day were over, so many times, she might feel worried as to the result. But it never hurts me a bit—no, not even if I drink a pitcherful just before going to bed. (Of course, I mean a *small* pitcher.) Well, if somebody should ask me where I found the nicest lemonade I ever tasted in my life, I would say that it was the pitcherful that friend Snyder's mother made for me that evening after my walk. Before I got the lemonade, however, I had to be introduced to the little ones of the household. They had all heard of Uncle Amos. Why, bless you, the baby's name was Ernest R. Since God had taken their mamma to her far-away home, friend Snyder has been almost father, and *mother* too,

to the little ones. They help him make garden, and they help him handle the bees; and, oh! isn't that a pretty garden and apiary on the banks of the river? No wonder friend Snyder has christened it "*Riverside Apiary*." We looked at the *Ignotum* tomatoes, and at various vegetables and plants that adorn their pretty little garden, grown from seeds bought of Uncle Amos; and the show of Chapman honey-plants was larger and finer than any thing of the kind I ever saw anywhere else. Why, the great balls were away up above our heads. The bees did not pay much attention to them, however, for basswood was just in its prime at the very time when these were blooming.

It was getting to be bed-time for the little folks, however, and I was duly installed in the big arm-chair and given the family Bible. Before opening it, however, I wanted to know a little more of the particulars just why Uncle Amos came to be such a welcome guest in that little home. Friend Snyder is a "*big man*"—big in a good many ways. His home is but an humble cottage; but for all that, it is a home far pleasanter to me than the finest palace our land can furnish. One of the most beautiful sights I have ever beheld is to see a strong man devoted heart and soul to his own home, his garden, his bees, his children, and to the work of making the home for the little ones around him a pleasant and happy place; and, above all, letting Christ Jesus be "*Lord of all*" in the home. In answer to my inquiries my friend spoke something as follows:

"Mr. Root, my wife and I began reading *GLEANINGS* before we kept any bees at all. I am a carpenter by trade, and one of our neighbors here in Orion employed me one winter to make some bee-hives for him. One day while I was eating my dinner I happened to see a sort of magazine on the work-bench, that Mr. Stewart had been reading, and he probably forgot to take it home. I turned the pages over absently, and finally began to read the coarse print. The style of teaching rather pleased me, although I then neither knew nor cared about bees more than to make the hives as I was directed. I became more interested, and asked Mr. Stewart if he would just as soon lend me a few more of those journals. Of course, he was glad to do so, and through them I became acquainted with A. I. Root. I talked with my wife about it, and in due time we had some bees of our own. Of course, it did not take us very long to find out that A. I. Root was more devoted to one other matter than to the bees; and as we had begun to consider him as our teacher, we followed him through the *Home Papers* and *Our Neighbors*. Pretty soon we felt it a duty and a *privilege* to unite with the little band of Christian workers here in our town, and now you know why I wanted to see you here in my home."

My stay was necessarily short, in order to meet all the friends I expected to meet, or had promised to meet, and on this account I got only a glimpse of the pretty little church by starlight where friend Snyder and his wife had united with the people of

God. Very soon after they had become rooted and grounded in Christ Jesus, it became evident that God was calling his dear companion and the mother of his children to a home beyond. But cheerfully and peacefully she went down through the dark valley; and now that his loved companion is on the other shore, it is not strange that friend Snyder feels all the more drawn to the work of laying up treasures in heaven, as well as doing what he can to make proper provision for the motherless ones in his home. I planned to take a view of the river after sunrise in the morning, and also to visit the bluff mentioned in his letter, before taking my departure; but, alas for human plans! in the morning it was so foggy that getting a photograph of the river was out of the question; I did manage to get a couple of views of his exceedingly neat and pretty apiary, although I had to get it without direct sunshine, which is especially needed for the Kodak. A picture of the apiary will be given in a future number. In the morning, while we were talking, friend Snyder's oldest boy, who helps him with the bees, came in to say that a certain colony, calling it by number, was "hanging out."

"Well, what if they do hang out, my young friend; what do you do about it?"

He replied that his papa did not allow his bees to do that way.

"Ah, indeed," said I. "Well, friend Snyder, if you have a plan for keeping bees from hanging out, I should be glad to see it."

He smilingly replied, that, if he remembered correctly, it was a plan he learned of A. I. Root. His hives have movable bottoms, and in a minute or two a little block was put under each of the four corners. Then the lid of the hive was raised a little so as to let a draft of air through. It did the business. In a little time the bees that were on the front had all gone inside. In this way our friend manages so as to keep all of his bees in the hives; and I am inclined to think that he accomplishes a good thing by so doing; for when the bees commence to go out in the morning, no clusters are observed hanging about on the fronts of the hives while the others are at work. In other apiaries during my visit, many and many a time could I see bees, almost by the bushel, hanging idly on the outsides of the hives, even while the basswood flow was at its height. I am firmly convinced that tons of honey are lost by letting bees loaf when they should be at work. The shop and extracting-room were as neat as a pin. Great broad doors could be swung open at both ends of the building, so as to get any amount of air during the extracting time; and when the bees become troublesome, wire-cloth doors take the place of the ordinary ones.

Another attraction to me was the beautiful springs that bubbled forth at the base of the river bank near the water. There are beautiful fish in the Wisconsin River, and the way they keep fish for sale is to keep them alive in a basin made by one of these springs; then when you want a fish, instead

of going to a meat-market you just go and weigh up a live one, picked out of this spring, with the hands, and there it is, all ready to be dressed.

Some years ago the Wisconsin River was navigable for steamboats; but the Government, in attempting to improve the channel by means of some costly experiments, running up to something like half a million of dollars, did the very opposite of what they intended to do; that is, the theory of the plans did not work, and the river was made entirely unfit for steamers, while it answered very well before they did any thing to it. It is bad enough for individuals to make blunders with their own property; but what shall we say when such blunders as the above are made?

Now, dear friends, I want to tell you that a peculiar tender relation always exists, or at least always should exist, between the one who has been led to Jesus and him who did the leading. There are doubtless many friendships in the world like the friendship of David and Jonathan; but there ought to be a hundred times more of them. Jonathan's father was David's most bitter enemy; but although his persecution and injustice were perhaps as great as any other man ever bore, David would not, even to save himself from harm, touch a hair of Saul's head, or, in his own words, "The Lord forbid that I should stretch forth my hands against the Lord's anointed." His wife was Saul's daughter, and his best friend on earth was Saul's son. No wonder that his forbearance stands out like a landmark to encourage and cheer generation after generation not to become weary in well doing. Sometimes in going over our ledgers the clerks tell me that a certain one is behind in making his payments. When I glance at the name, old recollections come up. Perhaps the one in question was led to Christ years ago by the Home Papers. My directions are at once, "No, no; do not trouble him."

"But," replies the book-keeper, "we have waited a long while."

But my reply is, "Never mind; he will surely pay if it is a possible thing for him to do so; and if he is not, I am willing to lose it."

You see, after the letters that have passed between us we have learned to know each other, and a faith has come up that nothing can dim or diminish. I know this friend will pay me when he can, without taking the trouble to write to him at all. What a pleasant thing it is to have such a faith in your fellow-men!

And now, dear friends, we who are members of the different churches, or, if you choose, we who are followers of Christ, should have just such confidence in each other. We should be of one family, and there should be an especial bond or tie between us, that should say in our hearts, if not in words, "No, no; you must not speak nor write harshly nor unkindly to that man." Sacred and solemn ties make you of one kinship and one blood. "We be brethren."

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

BEES AND RED CLOVER.

IN the Question - Box department not many issues ago, the value of red clover was very lightly esteemed. This year Neighbor H. had 15 acres of peavine clover within an eighth of a mile, or such a matter, of his Lafayette apiary. Our bees had ceased working on white clover and basswood, and robbing was the order of the day. But the bees in the Lafayette apiary, some two miles south, instead of robbing, were busy on red clover. Neighbor H. thought they were just as busy on this as he had ever seen them on white clover; and as he desired me to see it I hitched up Bess (that is my new horse) and went down, accompanied by Elizabeth. Yes, there was that same happy roar in the apiary that we hear during our regular honey season, and bees were tumbling down in front of the entrances heavily loaded. The hives showed that a large amount of this new honey was being gathered. The flavor of the honey was very pronounced. While Elizabeth stayed by Bess to see that she did not break off the end of the thill and kill herself, as did my other horse, I started off a few rods in the direction of the peavine clover. I just wish that those who have any doubt as to whether Italians will work on red clover could have seen the sight that I saw, have seen, and expect to see again. There was the same contented hum of thousands of bees here and there, stopping to take a sip of those great big rosy heads of clover.

THOSE HONEY QUEENS.

It may be that there are some Italians that work better on red clover than others. Perhaps it should be said that the bees of the Lafayette apiary are almost wholly from those two imported honey queens, spoken of in this department before. As the progeny of these queens have shown themselves to be greatly superior to the progeny of other queens, Neighbor H. has made the bees of this apiary almost entirely the descendants of these queens, and the drones are reared entirely from them. While the particular strain of bees may have shown unusual energy on the red clover, yet it is a fact that the average Italians are red-clover bees—at least in our immediate vicinity. Even at our home apiary, when there is a field of red clover within range we almost always notice bees at work on it to a greater or less extent.

SMOKERS; HOW TO MAKE A CLARK SMOKER GO ALL DAY WITHOUT GOING OUT.

I notice that our friend Dr. Miller has some trouble with his smoker going out. As he fills his smoker in much the same way that we do, and as our smoker never goes out after being set fully going, I must lay the difference to the fuel. We use a kind of excelsior, such as I have before explained, that comes from the hand-holes of hives and crates. It is a rather spongy sawdust,

lasts well, and, I think, it never goes out when once *fully lighted*. Dr. Miller's plan of filling the smoker now is, I believe, the same as our own. We grab up a handful of the excelsior, after having made sure that the grate is clear; shove it into the fire-box, and cram in as much as we can, till we have quite a solid mass of packed sawdust and excelsior mixed. We then, with the point of a pencil, or with the end of the finger, punch a draft-hole centrally clear through the fuel. A match is lighted, and the bellows worked. The flame of the match will shoot into this draft-hole, and ignite. The bellows should be worked vigorously for some little time, until the fuel is well on fire. After that the smoke will last for some two or three hours, and never go out. At the end of this time we simply replenish by cramming in more excelsior sawdust, omitting, however, to make a draft-hole, which is unnecessary, on account of the remnant still burning from the first filling. To help Dr. Miller out, and his able assistant Emma, I have decided to send them a bag of this kind of fuel. If it does not work in his hands as it does in ours—well, I will lay it to locality.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

OUR REPORT IN REGARD TO THE NEW VEGETABLES.

AUGUST 15.—The kidney wax bean has once more proved itself so greatly superior to both black German wax and the golden wax bean, that we are strongly inclined to drop the latter altogether. The black German wax is perhaps more tender and succulent when it gets old than the new kidney wax; but it rusts so badly that we feel almost like giving it up. The kidney wax is just as early as either. The pods are much larger, in greater profusion, and the one fact of having great long tender pods of immaculate whiteness, without a speck or blemish, is a big advance. If the beans are hoed when they are wet, they will be spotted, and show something like rust. They answer also very well for the first shell bean; but unless cooked immediately, the beans soon turn to a brownish color which is very forbidding. The white kidney beans are not nearly as forbidding in this respect; and as the York State marrow is a little earlier than any of them for a shell bean, we think we shall put it back in our price list again.

Henderson's bush lima bean is behaving itself admirably. None of them are yet ripe enough to show; but every stalk is loaded with beautiful broad pods, about the size of good-sized peapods, only having the appearance of a regular pole lima bean. The foliage also looks exactly like that of the pole lima.

The beans received from Colorado, that looked so much like Henderson's, all ran up poles. They are therefore, without question, the Seewee, or Carolina pole beans, while Henderson's is the same thing dwarf-

ed. As an illustration of how wonderfully prolific they promise to be, I will mention that I counted 100 pods on a single stalk. But very likely, these will not *all* mature.

This year again emphasizes the value of the Jersey Wakefield cabbage, H. A. March's strain, above any thing offered in the catalogues. The heads are so hard and solid that, if you undertake to handle a barrel of them, you begin to think it must be filled with cast iron; while if you purchase a barrel of cabbages from the city markets, you can toss the barrel into a wagon, without any trouble whatever. We have been planting the Jersey Wakefield pretty much altogether for cabbages during the whole summer. The only trouble is, they burst unless they are gathered promptly; but they are so much harder and so much crisper than any other, our customers willingly pay more for them.

Our celery has given us a great deal of trouble this season, because it runs up to seed, especially during hot weather. If anybody has a strain of celery that will give us early stalks, say in June, and not run up to seed, we should like to get hold of it. The Golden Self-blanching comes the nearest to filling the bill.

The Corey extra-early sweet corn has this season done wonders. We have had roasting-ears on the market for over four weeks before anybody else had any at all; and for all of two weeks we got 2 cts. an ear. We have managed this year so as to have one crop follow another just exactly as we wanted it. There has been no glut in the market, and we have had enough to supply all the demand at fair prices.

We are overloaded with cucumbers, however. We sold them for a good while at 10 cts. a pound, and then at 5 cts.; and now we offer them at a penny apiece, or 60 cts. per 100; and customers can have them just as big or just as little as they choose. The objection to selling cucumbers by the pound when they get to be very plentiful, is, that people begin to call for small ones; and of course we can not sell pickles by the pound at the same price that we do great big cucumbers; therefore they had better be sold by the hundred.

Grand Rapids lettuce and Henderson's New York are the standard kinds of lettuce for hot weather.

The Silver-King onion is the one for the market-gardener, providing he does not have too many at one time. They need to be sold about as fast as harvested, or they will rot.

The Stratagem pea is the standard for us, after we get through with the Alaska and American Wonder. It is not much trouble to sow them or drill them in, every ten days or two weeks.

I am very much pleased to be able to report Henderson's Puritan potato as standing with us at the head of the list. We have never had a nicer potato for cooking, especially for baking, in our household. Well-ripened potatoes, nicely baked, can be shaken out of the peeling by rapping on it with a knife, and the quality is equal to any. The shape is also equal to if not bet-

ter than any other potato we have ever got hold of. They come out of the ground so clean and white that one almost imagines they are *Brahma hens'* eggs. They are not quite as early as the Early Ohio; so the latter will still be retained as a first early potato. Last, but not least, they are wonderfully productive. To get our Early Ohios extra early, we planted large-sized whole potatoes; and, by the way, whenever you want potatoes before anybody else, plant whole ones, or, better still, sprout them in the greenhouse, and pick out the largest potatoes you have. Now, the Puritans were cut, most of the pieces, very small, in order to get the most possible from a limited quantity of seed; but the yield per row was fully equal to the Early Ohio. If it does everywhere as it does with us, it is going to be one of the staple potatoes.

Out of our 13 early pumpkins sent us by kind friends, just one has a ripe pumpkin on the vines at this date. It is not a yellow pumpkin, however, but it is of a light cream color. We are indebted for it to the writer of the following, which came to us on a postal card last winter:

Mr. Root:—I send you to-day a packet of pumpkin seed. It is light yellow in color, a new kind with us. It is excellent for pies. J. T. VAN PETTEN.

Linn, Kan., Feb. 25, 1889.

Burpee has certainly given us an improvement in crook-neck summer squashes. His Mammoth Summer crook-neck is a sight to behold, on account of its immense size, and at the same time the quality is fully equal to the old kind.

The Ignatum and Dwarf Champion tomatoes fully sustain their reputation; but somebody, I can not now remember who, has given us a new tomato that threatens to overturn every thing else. It is the "Peach" tomato. They are wonderfully like peaches, and just as early as any thing we have. They are not very large, however; and the vital point is, can Livingston or somebody else make them larger? Now, it seems to me that friend Livingston and the catalogue makers were all of them singularly dull when they forgot or omitted to tell us that the Peach tomato is in one respect ahead of and above and beyond any other good-sized tomato. It never rots. How do I know? Why, because I recognized it as belonging to the Plum and Pear tomato family just as soon as I saw it, and these have never been known to rot. You may remember that we have discussed this matter before. We had seriously thought of holding on to the King Humbert; but it was shaped so much like a flat-iron instead of egg-shape, as the catalogues gave it, that nobody would have it. Now, the peach tomato has just as pretty a shape as any tomato ever brought out. Some of the specimens are as large as fair-sized peaches, but there are a great many rather small ones. Can it be made larger, and how soon can we have it? I should not omit to mention the fuzz, or bloom. It seems really comical to think that Nature, in her sporting, has copied the fuzz on the peach. But it is so. If you arrange them in a basket so that only the blossom end is visible, you

could cheat people very well. When they turn them over, and look at the stem end, then they discover that it is not a peach.

The Lorillard tomato, with us, rots the worst of any thing we ever got hold of; and almost all of our tomatoes, except the Peach, are rotting at the blossom end before they get ripe. Perhaps after they get down to the business of bearing ripe tomatoes, they will get over it. May be the great abundance of rain has something to do with it.

Our garden for testing honey-plants is now looking very pretty. A bed that was made of a five-cent package of mixed portulacas takes the shine, and also takes pretty much all the bees. The melissa, or bee-balm, is pretty well covered with bees; but owing to the fact that only a few blossoms are out at a time, comparatively, it does not present the scene of activity as do the fig-wort and some others.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, AUG. 15, 1889.

Thy way is in the sea, and thy path in the great waters, and thy footsteps are not known. PSALM 77:19

We notice by the last issue of the *Revista Apicola*, published in Spain, that Frank Benton's present address is Krainburg, Haute Carniole, Austria.

THE ILLUSTRATED HOME JOURNAL.

Published by Thomas G. Newman & Son, of Chicago, Ill., we are glad to recommend as being a first-class publication of the kind. It is well illustrated, and the matter all of it as it should be, suitable for the home. The price per year is now \$1.00 per annum, or we will club it with GLEANINGS for \$1.75.

A GREAT HONEY-YIELD IN TEMPE, ARIZONA.

You will notice by the statistical department that our friend Gregg, of Tempe, Arizona, reports 20,280 lbs. from 190 colonies. Now, this is the more astonishing to me, as Tempe is dependent entirely upon irrigation. They do not have any rain to amount to anything at all, if I am correct. My younger brother lives there, and I believe he is in the near neighborhood of Mr. Gregg. Now, then, friend G., if you have secured a crop of over 20,000 lbs. of honey, you can certainly afford to tell us all about it—what it came from, how you did it, etc. If the honey was produced by irrigation, may be some of the rest of us may bring in irrigation to make our honey crop a little surer than it is at present. In this connection perhaps it would be well to remark that Frank McNay, of Wisconsin, produced 20,000 lbs. from 321 colonies, and S. I. Freeborn, of the same State, 32,000 from 300 colonies. This latter about equals Mr. Gregg's yield per colony. Chas. Dadant & Son secured 35,000 lbs. from 400 colonies.

RAISING CELLS ABOVE QUEEN-EXCLUDING HONEY-BOARDS NOT NEW.

FRIEND Heddon has called our attention to the fact that the subject given in the heading is not new, and that, some five or six years ago, he discovered it was possible to raise cells and young queens above a queen-excluding honey-board. He has referred us to an article which he wrote on page 518 of GLEANINGS for 1885. A paragraph of it reads as follows:

I have also discovered that two queens can be kept in the hive, one on each side of the excluder. In fact, wherever I have used the excluder, as soon as I put eggs and young larvae above it (where the queen could not go), queen-cells were started in quantity. In several instances last season, young queens were hatched. In two such, where we had put the queen above (to test the excluding powers of the board) she remained above, and a young queen was reared, hatched, and fertilized, below. This point is going to be of value to us in future.

He mentions the same thing in his book (published in 1885), on page 78, in similar language. Mr. J. D. Fooshe published the plan as new, and Doolittle corrects him by saying that the same was already given in his book. Now, Mr. Heddon bobs up and says he published it before either, and produces the printed proof. Notice, in friend H.'s last sentence of the paragraph quoted that he (Heddon) had succeeded in having a queen reared and fertilized above the perforated metal. Now, who will bob up and antedate the published report of the whole lot of them? Verily there is nothing new under the sun, or at least it looks that way sometimes.

A KIND WORD FOR THE A B C BOOK.

In the *Review* for August, one of its correspondents complains of the A B C book. The editor is kind enough to make the following points in his reply:

While we do not agree with all of the teachings contained in the A B C of Bee Culture, we regard it as one of the most consistent books ever written. Instead of bewildering the beginner with a thousand and one descriptions of different hives, "traps and calamities," its author sticks to one hive, one system, and one every thing else down through to the last chapter. And while they may not be the best, they hang together; each part fits the other; and if Mr. Root can furnish these things cheaper than the reader can make them, said reader ought to be thankful. We think many of the accusations of "ax-grinding" are unjust. A man doesn't always think an article is best because he adopted it; rather he adopted it because he thought it best. We don't wish to be understood as saying that the A B C mentions only one hive or system, but that the reader who follows the instructions given will never find himself in a muddle by having adopted the parts of two opposing systems.

Many thanks, friend Hutchinson. During my early experiences in bee culture I was so much mixed up and mystified by the advice contained in the different books and agricultural papers on the subject of bee-keeping that I made up my mind to write up a plain, simple book of directions; and you have perhaps put it in words better than I have seen it before; in fact, better than I could have told it myself. The fact that I invented and manufactured many of the goods I described, I have always felt to be in one sense a drawback. On this account I tried to have the A B C book as free from anything like ax-grinding as possible. If I am correct, nowhere in the A B C book is it mentioned that we have the articles for sale, although I have several times said that the expense ought not to exceed a certain amount; and I also gave the very fullest directions possible to enable

each bee-keeper to make his own implements. At the same time, it was difficult to ignore the fact that hives and a good many other things are necessarily made much cheaper when made by machinery than they could be made by hand.

ITALIANS ON RED CLOVER.

ERNEST'S remarks in another column remind me of a talk I had with E. France. We were riding in a buggy past a clover field, and he was so positive that Italians did not work on red clover that I spoke something as follows: "Friend E., if I can't find you Italians—lots of them, on the heads of red clover over in that field, then I shall be very much mistaken." He stopped his buggy, and I clambered over the fence; but to my great astonishment I looked in vain, even where the heads of clover were thickest. Not a honey-bee was to be found, although there were some bumble-bees. Now, in our own State I never before found such a field of clover as that in the month of July, without being able to find at least some Italians on the blossoms; and usually I find them in great numbers; in fact, I have convinced those who were skeptical, by just taking them out into a clover-field. Now, please remember, when you feel like being positive, that things of this kind are quite different in different localities. Perhaps I should add, there were plenty of Italian bees close by the field mentioned.

MARKING SPECIAL HIVES IN THE APIARY.

WHILE at Dr. Miller's I noticed him several times grasping a bunch of grass, clover, or even green foliage from the trees, and tossing it on top of the hive; and as I was making it my business to find fault with every thing, I commenced in this fashion: "Look here, old friend; that green stuff will soon dry up in the sun, and the wind will blow it away. Why don't you take a stick or stone?"

He stopped long enough to put his hand on my shoulder, saying, "My dear brother, that is just exactly what I want it to do. If we can get time we are going to examine the hives thus indicated, before we go away to-day; but if we can not, we do not want any mark left on it. If there is not wind enough to blow it away before we get around again, from its wilted and dried up appearance we shall know that it was put on at the last visit, and not during this present one."

Do you see the point, friends? The green stuff not only indicated that the hive was to be looked after, but it also, by its appearance, made a sort of date, indicating roughly the time the mark was put on the hive. If I am not mistaken, I saw other bee-keepers making use of exactly the same idea.

CONVENTION NOTICES.

The Iowa bee-keepers are anticipating a good time at their annual meeting, to be held on the Edgemoor, during the State Fair, Aug. 30 to Sept. 6.
J. W. MOORE, Sec'y.
Des Moines, Ia.

The Cortland Union Bee-keepers' Association will hold their annual basket picnic at the Floral Trout Park in Cortland, N. Y., Tuesday, Aug. 30, 1889.
M. H. FAIRBANKS, Sec'y.

The fifth semi-annual meeting of the Susquehanna County Bee-keepers' Association will be held at New Milford, Pa., on Saturday, Sept. 14, 1889. All are cordially invited to attend.
H. M. SKEELEY, Sec'y.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 1, 2, 3, 4, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary.
R. F. HOLTERMANN, Sec'y.
Brantford, Ont., Can.

SPECIAL NOTICES.

MORE ABOUT THE FAIRS.

No doubt many of our readers will make exhibits at their respective fairs, and will exhibit goods you already have, and not take advantage of our offer made a month ago. If any of you who thus exhibit care to distribute advertising matter for us, we shall be pleased to supply you with our usual outfit, and will send along with it free a copy of our cloth-bound A B C as remuneration for your services. We send along with the outfit, instructions for using it. The outfit consists of 100 advertising cards, 25 \$1000 reward cards, 10 price lists, 10 copies of GLEANINGS and 10 GLEANINGS posters. If any of you can use more to advantage, please say how many more, and we can send all together.

TIN AND GLASS HONEY PACKAGES.

We call our readers' attention to our page of honey-packages on the inside of cover to this number. Many of you are already familiar with these and their merits from the way your orders have been coming in. The 5-gallon square cans are now about as cheap as barrels—in fact, cheaper than barrels of the same capacity, and they are better in many ways. They are very convenient to draw from, especially with the little honey-gate to screw on to the cap. When we get honey in barrels, the first thing we do is to empty it into square cans. If we don't, it will very soon get to leaking and making us trouble.

Our new lot of 1000 nests, raised-cover pails, have a handsome swedge and fancy cover, which add much to their appearance. Our carload of glass tumblers and pails have been going so well we have had to get 47 bbls. more stock since the carload came, not two months ago. We have also received many words of praise concerning them from customers.

PRICE LIST OF JONES LITHOGRAPH LABELS.

Name of Label.	Size in Inches.	Price.		Postage.		Print'g Add's		
		100	1000	100	1000	1000	500	250
5-lb. Jones Lithogr'h.	6 1/2 x 14	1 00	9 50	12	1 20	1 00	75	50
2 1/2 ditto	3 1/2 x 14	60	5 00	6	52	1 00	75	50
1 ditto light.	4 1/2 x 9 1/2	50	4 00	4	35	1 00	75	50
1 ditto darker.	4 1/2 x 9 1/2	50	4 00	4	35	1 00	75	50
1/2 ditto.	2 1/2 x 8 1/2	25	2 00	3	28	90	75	50
1/4 ditto.	2 x 7 1/2	25	2 00	3	25	80	75	50
1/8 ditto.	1 1/2 x 5 1/2	15	1 00	2	18	70	75	50
A do., for 1-lb. Cart'n.	4 1/2 x 4 1/2	40	3 50	3	20	1 00	75	50
B do., for " "	4 1/2 x 4 1/2	40	3 50	3	20	1 00	75	50
C do., for 2-lb. " "	5 1/2 x 5 1/2	45	4 00	4	30	1 00	75	50
D do., for " "	3 1/2 x 5 1/2	45	4 00	4	30	1 00	75	50
E ditto.	2 1/2 x 16	50	4 50	4	36			
F ditto.	2 1/2 x 16	50	4 50	4	36			
G ditto.	2 1/2 x 13 1/2	55	5 00	5	42	1 00	75	50
H ditto.	2 1/2 x 13 1/2	55	5 00	5	42			
I ditto.	3 1/2 x 14	60	5 50	6	52	1 00	75	50
J ditto.	2 1/2 x 16	60	5 50	6	52			
Abbott Oval Lith'ph.	2 1/2 x 2 1/2	30	2 00					

Those of you who have never seen these labels can form little idea how handsome they are; and that you may see them without much expense we will put up a sample package of 1 of each kind, and mail postpaid for ten cents. Eight of the above may be divided into 2 and 3 labels each, so that you can get a small lot (over 30) of handsome lithograph labels, no two alike, for only 10 cts. These sample packages would be very good for labeling a small fair exhibit. They would at least add variety. We can not, of course, print your name and address on the sample package or any number less than 100, and those opposite which we give no price for printing, have no blank place for such printing, and hence can not be printed. All the above are ungummed. You can not get lithograph or any colored labels on gummed paper.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of ten years' careful breeding. Reduced prices: Warranted queens, each, 70c; 3 for \$2.00. Strong 3 L. frame nucleus, with warranted queen, \$2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me, I refer to A. I. Root, who has purchased of me, during past nine years, 405 queens.

Address

J. P. MOORE,
Morgan, Pendleton Co., Ky.

In responding to this advertisement mention GLEANINGS.

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We have at this date 9066 subscribers. *Thank you.*

THE BUSH LIMA BEANS.

WELL, dear friends, the bush limas are finally big enough to cook, and they are all right, except in size. With us, however, they are not a bit earlier than our extra-early *pole* lima beans. They are, however, a real bush lima bean, and wonderfully prolific. The little bushes are just bending under their loads of pods.

THE lima beans from Northrup, Braslin, Goodwin & Co. did finally stop running up poles, and turned out to be a tolerably fair bush bean. When ready to cook, they look, when shelled, much like a very thick lima bean; and the quality, when cooked, is something about half way between ordinary white beans and a lima bean. It hardly has a lima-bean flavor, and the plant does not look at all like a lima bean. But they are a very rich, toothsome bush

bean. When we first shelled them I decided that we would raise them for a shelled bean for the wagon; but in a few hours my wife called to me that our lima beans had all turned a reddish yellow. Exposure to the air for just a little while made them begin to assume the color they are when ripe and dry. This one thing would unfit them for sale on the wagon, shelled. On the whole, I do not think they have any right at all to be classed with limas.

THE KUMERLE LIMA BEAN

THIS is a true lima bean, and it is fully equal in size to the pole limas. The plant, however, seems to demand a tropical climate. It, as well as Henderson's bush lima, is more tender than our pole limas. I am very much afraid that the Kumerle will not escape frost unless we have very favorable seasons. At present the number of beans on a plant does not begin to compare with the amount on the pole limas. It is true, that, under the influence of heavy manuring and extra cultivation, our pole limas are bearing a tremendous crop; but the bush limas were given the same or better ground, and the very best care. Here is something further that is a little queer in regard to suitable soil for lima beans: While our creek-bottom land, that we thought was so greatly superior for almost every thing, will not raise lima beans worth a cent, our hillsides of heavy clay give beautiful crops season after season. Now, this clay land will bake down as hard as a rock unless it is kept constantly stirred in the summer time, and lightened up by lots of manure. The creek-bottom land has, however, so much sand that its cultivation is always quite easy.

SAVE THE SEED OF YOUR IGNOTUM TOMATO.

THE prospect is, we are not going to be able to anywhere near supply the demand for the seed during the coming season. In fact, we have orders already booked for \$42.00 worth. Save the seed from every tomato; and if you do not want it all, I can probably take it off your hands at a good price. You will notice that the Ignotum is so "full of meat" that it produces very few seeds comparatively.

A STEP FORWARD TOWARDS SUCCESS!

After carefully studying the demand of consumers and dealers, and selecting of the many styles of packages for comb honey the very best and the most attractive, we have now prepared an improved paper carton combined with a comb-protector. Honey, put up in these packages, will be bought in preference to all others at highest market price. Our patent comb-protector will prevent leakage and soiling of sections. Comb honey can be easily and quickly put up in our cartons. These advantages and the small cost of our cartons and comb-protector will save labor, time, money, and honey. Ströhmeyer's patent comb-protectors require $\frac{1}{2}$ inch of the inside height of crates. Price list and sample carton sent free on application.

F. G. STROHMEYER & CO.,
WHOLESALE HONEY MERCHANTS,
122 WATER STREET, NEW YORK.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION.
See advertisement in another column.

FOR PURE ITALIAN BEES,
POLAND-CHINA SWINE, WHITE AND BLACK
FERRETS, WHITE RABBITS, WHITE
AND BROWN LEGHORN CHICKENS, AND
MALLARD DUCKS, ADDRESS
N. A. KNAPP, ROCHESTER, LORAIN CO., OHIO.
17:tdb

Cash Paid for Beeswax.

CORRESPONDENCE SOLICITED.

R. B. LEAHY & CO., - - - Higginsville, Mo.
17: - - - 19d

20,000 feet select white linn lumber, well seasoned; all under roof; mostly 2 in. thick; will sell. Want to buy 10,000 raspberry tips, black caps. Also want to buy 20 bushels Scott wheat. Will pay \$1.00 per bushel. J. B. MURRAY, Ada, Ohio.

28 In responding to the advertisement mention GLEANINGS.

"Everbearing" Strawberry.

Plants, by mail, 1 cent each. Bears from frost to frost.

SETH WINQUIST,
Mount Tabor, Oregon.

ITALIAN QUEENS. Tested, \$1.50. Untested, 75c. Mismatched, 35c. Send for price list.

MISS A. M. TAYLOR, Mulberry Grove, Bond Co., Ill.
17:tdb Box 77.

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.
See advertisement in another column.

SIX pure Italian queens, 5c each; 10 mismatched, 30c each; 15 hybrids, 20c each.
F. C. MORROW, Wallaceburg, Ark.

ITALIAN QUEENS by return mail; tested, \$1; untested, 75c. LEININGER BROS.,
16:tdb Douglas, Putnam Co., Ohio.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheap. We are offering our choicest white one-piece $4\frac{1}{2} \times 4\frac{1}{2}$ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 11tfdb

C. B. LEWIS & CO., Watertown, Wis.

In response to this advertisement mention GLEANINGS.

California.

FOR SALE.—A well-established trade in the supply business. For particulars apply to 16-17-18d Box 2, Duarte, Cal.

MIAMI

The BEST Late
Strawberry
ON EARTH!
PRICE REDUCED

New testimonials and a fine lithograph and photo-engraving of the fruit. All leading varieties for sale. Send for price list and pamphlet to the originator, J. D. KRUSCHKE, Box 824, Piqua, Ohio.

In responding to this advertisement mention GLEANINGS.

Sturwold's Show-Case

FOR THE PROTECTION AND DISPLAY OF
HONEY.



In well-equipped retail stores you will find many goods displayed in show-cases. This is because, from their nature they are liable to damage from dust, exposure, and frequent handling. What is more worthy a place under glass than our honey? By adding to its attractiveness it calls the attention of more people to it, and thus increases its sale. We have just made a new lot of cases, similar to the one shown above. We have used chestnut instead of walnut, and have improved the construction of the case so as to make it stronger, lighter, and simpler. To save transportation charges we can finish these all up and then take out the four corner standards and ship "knocked down" and securely boxed. They will thus go as first-class freight, while put up they charge three times first-class rates by freight. By express there would be no difference. Price of the case, put up with glass in, or boxed separately, or knocked down and boxed any of the three ways, will be the same—\$4.00. With name and address on the front glass, \$4.50.

A. I. ROOT, Medina, Ohio.

CHOICE ITALIAN QUEENS.

Tested, \$1.25 each; untested, June to Oct., 75 cts.; 3 for \$2.00. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tfdb

JNO. NEBEL & SON, High Hill, Mo.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To correspond with parties having land to sell which they know is in a good honey location, or exchange for property in this county.

L. C. CALVERT, Poplar Flat, Lewis Co., Ky.

WANTED.—To exchange extracted honey for a Barnes improved saw, sections, foundation, family Bible, or Webster's Dictionary.

17d

WM. PEARSON, Oswalt, Iowa.

WANTED.—To exchange bees for a Barnes combined saw in good order.

Dr. A. W. TUFTS, Musson, Iberville Parish, La.

WANTED.—To exchange 3 L. frame nucleus, with yellow Italian queen, in one-story Simplicity hives, worth \$2.00, for white paint, or offers.

MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—To exchange pure Italian queens for extracted honey. Please correspond with description of honey and price, f. o. b. cars at your station.

15tfdb

WM. W. CARY, Coleraine, Mass.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address

4tfdb

OTTO KLEINOW,
No. 150 Military Ave., Detroit, Mich.

WANTED.—To exchange bees for extracted honey.

J. F. MICHAEL, German, Darke Co., O.

15-16-17d

WANTED.—To exchange bees, for top-buggy, road-cart, surgical or dental instruments.

Dr. CORYA, Moore's Hill, Ind.

PUBACH, Jessie, Warfield, Hoffman's Seedling, B May King, and Crescent strawberry plants, cheap, in exchange for comb or extracted honey, sections, or beeswax. Plants true to name.

Write to

E. T. FLANAGAN, Belleville,

Box 995. St. Clair Co., Ill.

Black and Hybrid Queens For Sale.

Fifty untested Italian queens, 50 cents each.

M. ISBELL, Norwich, Chenango Co., N. Y.

Hybrid queens of the best strains, producing energetic workers, 50c each.

EDWARD YOUNG, Boonville, Mo.

Fine hybrid queens for 30c each, or 4 for \$1.00; guarantee safe arrival.

FRANK HOWARD, Fairfield, Wayne Co., Ill.

One dozen Italian hybrid queens for sale at your own price. They are good, serviceable queens. Some of them produce mostly three-banded worker bees. J. H. JOHNSON, Middaghs, Northam, Co., Pa.

I want to sell 30 full-blood Italian queens that are mated with black drones; they are fine, good, prolific queens. Will send them by mail to any address in the U. S. for 30 cts. each. All are young, raised this season. I want to sell them bad.

H. J. HANCOCK, Siloam Springs, Ark.

SPECIAL NOTICES.

DECLINE IN BEESWAX AND COMB FOUNDATION.

We quote a further decline in beeswax, as follows: We will pay, for average wax delivered here, 21 cts. cash or 24 in trade. For bright yellow, from 1 to 3 cts. extra. Our selling price will be 26 for average, 30 for selected. We drop comb fdn. back again to the old price before the rise, which is as follows:

Packed in neat boxes, with tissue paper between every two sheets.	Heavy brood, 4 to 6 ft to lb.	Light brood, about 7 ft to lb.	Thin, surplus, about 10 ft to lb.	Extra t'n flat bott'm 12 ft to lb.
1 to 10 lbs. per lb.	40	43	50	60
10 " 25 " "	39	42	49	59
25 " 50 " "	38	41	48	58
50 " 100 " "	37	40	47	57
100 " 200 " "	36	39	46	56

WRITING AND PENCIL TABLETS.

We have secured a bargain in these, and propose to give you the benefit of it. We have thirteen different styles, of which we give size, number of leaves, name, and price, in the following table. You can write with a pen on any of the tablets, although most of them are designed for penciling.

Name or Designation.	Size in inches.	No. of Leaves.	Post. on 1.	Price of 10
Our Pets Ruled Pencil Tablet.	5 x 8	60	5	3 25
No. 0 Ruled Pencil Tablet.	5 1/2 x 8	70	5	3 25
Ideal Unruled Pencil Tablet.	7 x 10	30	5	4 30
Monumental Unruled ditto.	8 x 12	65	10	5 45
Greenaway Ruled ditto.	7 1/4 x 10 1/2	42	6	5 40
No. 00 Ruled Pencil ditto.	5 1/4 x 10 1/2	70	10	7 60
Geographical ruled ditto.	6 x 9	180	13	7 60
Student's Note-Book.	5 1/2 x 8 1/4	90	8	7 60
America Writing Tablet.	6 x 9	60	8	7 60
No. 36 Writing Tablet.	5 1/4 x 8 1/4	65	8	7 60
No. 65 linen Writing Tablet.	5 3/4 x 8 3/4	80	7	15 20

In case we get out of any one style we reserve the right to substitute one as near like it as possible. Notice, the cost of mailing is greater than the original cost, so that you don't get much benefit of the low price unless you can order with other goods by freight. "Our Pets" has assorted chromo pictures of children with pet animals on the covers. "Ideal" has assorted child's faces. "Monumental" has a picture of Garfield Monument. "Greenaway" series have assorted chromo pictures. "Geographical" have assorted maps of different States. "Student's note-book" is thoroughly bound, cloth back. "America" has lithographic views of several celebrated scenes in America.

THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free.

W. Z. HUTCHINSON, Flint, Mich.

Please mention GLEANINGS.

13fdb

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.
SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO.,
37fdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

The Secrets of Success in the Growing of Small Fruits

Gives you the benefit of several years' experience in growing berries for market, together with my illustrated catalogue and price list of berry-plants; sent free on application. Now is the time to set strawberries for next year's fruiting. Jessie, Cloud, and other new varieties.

16-19db

I. A. WOOLL, Elsie, Mich.

In responding to this advertisement mention GLEANINGS.

RARE CHANCE!

Fifteen colonies of bees in 10-frame Simplicity hives, in first-class condition, ready to ship by return express, at \$3.00 per colony. Send in your orders at once, as they must go quick. Five or more at same rate.

DR. CARL TUTTLE,

17d Berlin Heights, O.

In responding to this advertisement mention GLEANINGS.

Bee-Keepers & Poultry-Keepers

Buy a World Type-writer and print your own price lists, and save 90 per cent. Send for price list of World type-writers and Columbia bicycles to

ROBERT B. GEDYE, La Salle, Ill.

In responding to this advertisement mention GLEANINGS.

Italian and Carniolan Queens.

Thirty years a queen dealer. Prices low. Circular free.

HENRY ALLEY, Wenham, Mass.

In responding to this advertisement mention GLEANINGS.

DADANT'S FOUNDATION

Is kept for sale by Messrs. T. G. Newman & Son, Chicago, Ill.; C. F. Muth, Cincinnati, O.; Jas. Heddon, Dowagiac, Mich.; O. G. Collier, Fairbury, Nebraska; B. J. Miller & Co., Nappanee, Ind.; E. S. Armstrong, Jerseyville, Ill.; E. Kretschmer, Coburg, Iowa; P. L. Viallon, Bayou Goula, La., M. J. Dickason, Hiawatha, Kansas; J. W. Porter, Charlottesville, Albemarle Co., Va.; E. R. Newcomb, Pleasant Valley, Dutchess Co., N. Y.; D. A. Fuller, Cherry Valley, Ill.; J. B. Mason & Sons, Mechanic Falls, Maine; G. L. Tinker, New Philadelphia, O.; Jos. Nysewander, Des Moines, Ia.; C. H. Green, Waukesha, Wis.; G. B. Lewis & Co., Watertown, Wisconsin; J. Mattoon, Atwater, Ohio, Oliver Foster, Mt. Vernon, Iowa; C. Hertel, Freeburg, Illinois; Geo. E. Hilton, Fremont, Mich.; J. M. Clark & Co., 1409 15th St., Denver, Colo.; Goodell & Woodworth Mfg. Co., Rock Falls, Ill.; J. A. Roberts, Edgar, Neb.; E. L. Gould & Co., Brantford, Ontario, Canada; J. N. Heater, Columbus, Neb.; E. C. Eaglesfield, Berlin, Wis.; C. D. Battey, Peterboro, Mad. Co., N. Y.; G. K. Hubbard, Fort Wayne, Ind., and numerous other dealers.

We guarantee every inch of our foundation equal to sample in every respect. Every one who buys it is pleased with it.

Write for free samples, and price list of bee-supplies and specimen pages of the new

REVISED LANGSTROTH BOOK,

Edition of 1889.

3tfdb

CHAS. DADANT & SON,
Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

Crawford's Folding Paper Boxes

For Inclosing Section Honey.

THE BEST BOX FOR THE LEAST MONEY!
\$5.00 Per 1000

and less, according to quantity. Send for sample and price list.

A. C. CRAWFORD, S. WEYMOUTH, MASS.

In responding to this advertisement mention GLEANINGS.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.

THE D. A. JONES CO., BEETON, ONTARIO, CAN.

HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—As nearly as we can learn, the crop of white honey through the East will be short, owing to the wet season, hence the present outlook is favorable for good prices for comb honey put up in 1-lb. and 2-lb. sections, packed in cases of 20 to 24 lbs. each, and put up in neat, clean, and attractive packages. We beg leave to inform all bee-keepers that we are in a position to handle large quantities of honey in the comb, also extracted, and will take an active interest in disposing of honey to the very best advantage. Our commission for doing business is 5%. The season for the crop of honey is just opening, and prices are not fully established. We quote: Fancy white clover, in 1-lb. sections, per lb., 16½¢; 2 lb., 14¢; ordinary grades, 1 to 2¢ less. No buckwheat honey to quote. Extracted honey, white clover, per lb., 8½¢; orange bloom, 7½¢; Southern, off color, 6¢ to 7¢ per gal.; California extracted, in 60-lb. cans, 7½¢; comb, in 6-lb. cases, 13¢ to 14¢. *Bee-swar*, Southern, crude, 23½¢ to 24½¢; Northern, 23¢.

Aug. 15. WALKER & McCORD,
32 & 34 So. Water St., Philadelphia, Pa.

NEW YORK.—*Honey.*—We received several lots of new comb honey, white, 1 and 2 lb. sections. The demand is fair; the market just about opening, although the weather is very warm. We quote: fancy white, 1 lb., glassed and unglassed, 16¢; 2 lb., 14¢; fair white, 1 lb., 14¢; 2 lb., 12¢. Extracted remains firm, with a first-class demand for all kinds, and brings the following prices on arrival: Orange blossom, 7½¢ to 8¢ per lb.; white clover and basswood, 8¢ to 8½¢; Southern strained, average quality, 6¢ to 7¢ per gal. Send in your extracted honey now and get immediate returns.

HILDRETH BROS. & SEGELKEN,
New York.

CINCINNATI.—*Honey.*—Demand for extracted honey is fair from manufacturers, and fair from consumers for table use. It brings 5¢ to 6¢ on arrival. Arrivals are good. There is a good demand for best qualities of comb honey, while inferior grades find a slow sale. It brings 11¢ to 15¢ in a jobbing way. *Bee-swar* is in good demand and sells readily at 20¢ to 22¢ on arrival for good to choice yellow.

Aug. 21. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

ST. LOUIS.—*Honey.* The market is very quiet. Too much fruit at low prices to leave any room for rushing it. Moving slowly; choice white clover, comb, in 1-lb. sections, single tier preferred, 12¢ to 12½¢; larger sized sections, 10¢ to 11¢. Extracted, in cans, 5½¢ to 6½¢; bbl., 5¢ to 5½¢; Southern, 4½¢ to 5¢. — *Bee-swar*, prime, 23½¢; small orders more.

Aug. 21. W. B. WESTCOTT & Co.,
St. Louis, Mo.

NEW YORK.—*Honey.*—Extracted, California, 7½¢ to 8¢; orange bloom, 7½¢ to 8¢; common Southern, 65¢ to 75¢ per gal.; white clover and basswood, 7½¢ to 8¢; comb honey, 1 lb., fancy white, 16¢; 1 lb., fair, 14¢; 2-lb. sections, 2¢ less. As prices are about 10 per cent lower this season than last year, we expect a very active demand early in the season.

Aug. 21. F. G. STROHMEYER & Co.,
New York.

COLUMBUS.—*Honey.*—Home honey about exhausted. White-clover honey in 1-lb. sections, 16¢ to 17¢. Early consignments would be profitable, and meet with ready sale. Last week we closed out 75 cases (13 lbs. to the case) from 15¢ to 17¢. Extracted honey slow.

Aug. 20. EARLE CLICKENGER,
Columbus, Ohio.

KANSAS CITY.—*Honey.*—New crop arriving freely; demand light; 1-lb. sections, white clover, 16¢; 2 lb., 14¢; extracted, 8½¢ to 9¢; dark, 6½¢ to 7¢.

Aug. 21. HAMBLIN & BEARSS,
Kansas City, Mo.

BOSTON.—*Honey.*—Honey has arrived quite freely. Sales are a little slow; 1-lb. comb is selling from 17¢ to 18¢; 2 lb. from 15¢ to 17¢; extracted from 8¢ to 9¢.

Aug. 21. BLAKE & RIPLEY,
Boston, Mass.

KANSAS CITY.—*Honey.*—Receipts of comb honey large. Market slow, at 14¢ to 15¢ for 1-lb. white comb; 13¢ to 14¢ for 2 lb. White, extracted, 7¢ to 8¢; dark, 6¢. *Bee-swar*, 20¢ to 25¢. CLEMONS, CLOON & Co.,
Aug. 22. Kansas City, Mo.

ALBANY.—*Honey.*—Weather too hot yet for much of a demand in honey, but as soon as changes, look for good prices. Honey consignments and correspondence solicited. H. R. WRIGHT,
Aug. 21. Albany, N.Y.

ST. LOUIS.—*Honey.*—Market very quiet, and declining. We quote extracted at 5¢ to 5½¢; comb, white clover, 12¢ to 12½¢; fair, 10¢ to 11¢. *Bee-swar*, 24¢. D. G. TUTT Gro. Co.,
Aug. 21. St. Louis, Mo.

DETROIT.—*Honey.*—New honey coming in very slowly, and selling at 14¢ to 15¢ for 1-lb. sections. *Bee-swar*, 23¢. M. H. HUNT,
Bell Branch, Mich., Aug. 21.

WANTED.—500 lbs. of nice comb honey.
A. D. ELLINGWOOD, Milan, N. H.

FOR SALE.—1000 lbs. extra choice clover and basswood honey, in 1-lb. sections and 12-lb. cases, at 15¢ per lb., delivered at the depot of any one of five different railroads.

FRANK DURAND, Esdaile, Pierce Co., Wis.

FOR SALE.—2500 lbs. of choice white clover and basswood honey, put up in 60-lb. screw-top cans, at 8¢ per lb.

F. W. HOLMES, Cooperville, Ottawa Co., Mich.

FOR SALE.—4000 lbs. extracted clover and basswood, in 10-gal. kegs, at 10¢ per lb., kegs thrown in.

M. ISBELL, Norwich, Chenango Co., N. Y.

FOR SALE.—Quite a quantity of white clover and basswood honey, put up in 60-lb. square cans. Will take \$4.75 per can at my place. Correspondence solicited. 17-18d H. L. ROUSE, Republic, Iowa.

FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections, and 12-lb. cases, at 15¢ per lb. (100 lbs. or more). Also 60-lb. screw-cap cans of extracted clover honey at \$4.90 per can; 2 cans in 1 box, \$9.60. Safe arrival guaranteed by freight.

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.
17tdfb

FOR SALE.—10,000 lbs. of choice white-clover honey, in first-quality 1-lb. sections, 24 and 48 lb. cases, delivered free on board cars at Dixon, at 13 cts. per lb. If you want 1000 lbs. or more, write for special prices. 17-18d EZRA BAER, Dixon, Ill.

FOR SALE.—25,000 lbs. choice extracted white-clover honey, in barrels holding about 550 lbs. net, each. I put it up also in packages of any size desired, in either wood or tin. There is no finer honey than this in the market. Write me what you want, and I will give you prices.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

CONVENTION NOTICES.

The Iowa bee-keepers are anticipating a good time at their annual meeting, to be held on the fairground, during the State Fair, Aug. 30 to Sept. 6. J. W. MOORE, Sec'y.
Des Moines, Ia.

The fifth semi-annual meeting of the Susquehanna County Bee-keepers' Association will be held at New Milford, Pa., on Saturday, Sept. 14, 1899. All are cordially invited to attend. H. M. SEELEY, Sec'y.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1899. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary. R. F. HOLTERMAN, Sec'y.
Brantford, Ont., Can.

The Northwestern Bee-keepers' Society will hold its annual convention at the Commercial Hotel, corner of Lake and Dearborn Sts., Chicago, on Friday and Saturday, Oct. 11 and 12, at 9 a.m. Arrangements have been made with the hotel for back room, one bed, two persons, \$1.75 per day, each; front room, \$2 per day, each person. This date occurs during the exposition, when excursion rates on the railroads will be one fare for the round trip, good from Oct. 10 to 14, inclusive. There has been a large crop of honey in the West, and an old-time crowd may be expected at this revival of the Northwestern from its "hibernation." W. Z. HUTCHINSON, Sec'y.



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SEPT. 1, 1889.

No. 17.

TERMS: \$1.00 PER ANNUM IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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OUT-APIARIES, NO. XIV.

MEMORANDUM OF WORK TO BE DONE.

MUCH method and planning about your work is not so necessary with only a few colonies; but as the number increases it becomes more necessary; and when your bees occupy two or more apiaries it becomes very necessary that you know beforehand just what you are to do. So it is important, not only to keep a record of what has been done, but to keep a concise memorandum of what is to be done. This can be kept very conveniently in your record-book. I usually put it in the back part of the book. On the left-hand margin of the page, write the dates of the month and the days of the week; and as fast as you know what is to be done ahead, enter the number of the colony to be treated; and if you think best, use some character or letter to indicate what is to be done. I don't mean to say that every thing of your regular work is to be put down, only the unusual things that you might forget, especially those things that might make considerable trouble if you did forget. A part of your memorandum might be like this:

June.

1. Sat. 5, 18, 57, 63.

— o c l y

3. Mon. 219, 234, 238, 242, 259.

a o n

4. Tues. 128, 146.

5. Wed. 304, 315, 322.

— y

This means, that on Saturday, June 1, queen-cells are to be destroyed in No. 5. See if there are any eggs in 18; clip the queen of 57, and so on. You will have to look at your record to see what is to be done with 219, and others which have no marks

under them. Sometimes a rainy day will occur, making it necessary to change your arrangements, and then you will find it of great advantage to have your memorandum and your record, for then you have all your apiaries before you, and can plan understandingly, and not leave some important thing too long.

In another place in your book, make a memorandum of any thing that you want taken to any of the out-apiaries. For instance, at a certain apiary where you are to-day, you find you will need so many empty hives, frames, boards for stands, or what not. If you trust to memory you may go next time and leave some needed thing at home, the lack of which may discommode you very much.

OUT-APIARIES RUN WITH NATURAL SWARMING.

If you are a strong advocate of natural swarming you will have some one at each of your apiaries during the busy season, and it depends upon circumstances and your own views of management whether you shall have some cheap hand, merely to watch for swarms and get them hived in some sort of shape, or have efficient help at each apiary while you go around from one apiary to another and have a general oversight over all. Adam Grimm followed the latter plan, I believe. One of the most successful bee-keepers in the country has for each apiary a man capable of running it, and each one of these lives in the village and makes a report at headquarters, every evening, of the doings of the day, going back to his own apiary the next morning. In this case each man has his own conveyance, and hauls for himself the necessary hives, sections, etc. In the other cases you will take with you to the different apiaries whatever may be needed.

I say nothing about management of first and second swarms, for I don't know that there is any thing about it peculiar to out-apiaries.

OUT-APIARIES WITHOUT SWARMING.

Without attempting to discuss whether it is better to encourage or discourage natural swarming, I may say that there are many bee-keepers who think it better on the whole to suppress swarming, either to some extent or as much as possible. If, like some others, you have been trying to find some way by which you could get your bees to work right on through the harvest without any attempt at swarming, when working for comb honey, I am quite safe in saying that your desire to find such a way will be greatly intensified when you come to establish one or more out-apiaries. For whatever may have been the case with one apiary, if you do not desire swarming it will certainly be a great convenience to be able to leave an out-apiary for three days or a week with little or no anxiety about what the bees may do in the way of swarming. To prevent increase is quite an easy matter, for any one can double up; but to prevent swarming is quite another thing. This is not the place to discuss plans to prevent swarming; but I may say that, although I am not without hope that some one may find out a better way, I am not sure now of any way except the one which is probably familiar to you, of keeping the queen caged or out of the hive during the swarming season. "But," you say, "doesn't the absence of the queen or the loss of so much brood during the working season prove detrimental?" Quite likely; but the fact that such men as Capt. Hetherington and P. H. Elwood practice on this plan, shows that they think more is to be gained than lost by it. Even if it should require just as much work during the season as to allow natural swarming, the work can be more evenly distributed; for if you have 100 swarms in 10 days it is any thing but certain that you will have exactly ten each day. Besides, I suspect that three or four persons can take care of more bees by going about from one apiary to another than if each one were obliged to stay in his own place.

Another thing that is quite an item to some, is that it is very much pleasanter to have company, and go together from one apiary to another, than to work alone each day.

Mind you, I'm not insisting that for *you* it is best to try to have no swarming. If you have great faith in natural swarming (and some of our best men have), swarm away to your heart's content. I'm only saying that, if you have a leaning toward the suppression of swarming, you will lean *away* over when you have more than one apiary. What I have said applies particularly to apiaries run for comb honey. If you run for extracted, of course the danger of swarming is very much lessened.

Marengo, Ill.

C. C. MILLER.

ITEMS FROM THE APIARY.

HOW TO TELL WHEN A COLONY IS QUEENLESS.

AT this season of the year we often examine the old colonies in our apiary which have cast swarms, to see if the young queens in the same have commenced to lay. In doing this we often find colonies which have the cells all cleaned out and prepared for the queens, yet there are no eggs in them. I used to think, that where I found cells thus prepared it was a sure sign that the queen was present and was about commencing to lay; but years of experience have taught me that this can not always be depended up-

on; and if a hive is left without further looking after, it often happens that they remain queenless so long that fertile workers get possession of the combs, in which case it is about as well to break up the colony as to try to make them accept a queen. Finding some colonies in the above shape, apparently with queens just ready to lay, I thought I would not wait and look again, as I generally have, often hunting some time for the queen when I did not see eggs, so I went to some of my other colonies, and took frames from them which contained plenty of brood in the egg and larval state, and placed it in the center of each of these doubtful colonies. In four days I went to these colonies again, when all I had to do to tell whether they were queenless or not was to lift these combs I had set in and see whether there were queen-cells on them or not. To my surprise over half of them had queen-cells on them, thus proving conclusively that they were queenless. Now, being positive that they had no queens, all I had to do to introduce one was to take away these frames of brood, put them back in the hives where they came from, and in an hour, when these were mourning because of the loss of this brood, roll a queen in honey and drop her in the hive at the top of the frames, resting assured that she would be well received, for I never lost a queen when put in a hive under these conditions. A frame of brood containing eggs and larvæ placed in any doubtful colony will always tell whether they are queenless or not, yet from the many reports of losses of queens which I have received, it would seem that queens are largely ordered for supposed queenless colonies, and then lost in trying to introduce them to a colony having something they are reverencing as a queen.

SEVERAL QUEENS IN A HIVE.

Just before the honey harvest closed, a swarm came out unexpectedly one day, and, not caring to bother with it at that time, as I was in a hurry, I paid no attention to them, except to cage the queen at the entrance of the hive, and in an hour or two, when passing that way, liberate her, letting her run into the hive. I intended to look the hive over in a day or two and cut the queen-cells off, if the bees had not already done so; but being extremely busy I did not get at it till over two weeks had passed. Passing by this hive one day I saw that this colony had many drones flying, while nearly every other colony in the yard had killed off their drones. I at once resolved to open the hive, which I did. On lifting the first frame I found two queen-cells from which queens had hatched, neither of which showed any signs of being gnawed into at the sides, as they generally show where a young queen hatches after swarming is given up, for under such circumstances the bees and young queen soon destroy all of the rest of the cells. The next comb contained another queen-cell, showing that this one had also hatched a queen from it, and so I kept on finding queen-cells from which queens had hatched to the number of six or seven, all looking as if the queens had been out of them for several days. On the second frame I found a young virgin queen, evidently a week or more old, and others of about the same age on other frames, till I had counted five. There was no piping or quarreling on the part of the queens, and the bees did not pay any attention to them. The singular part of it was their age, and the time of year. It is nothing singular to find several *very young* queens at liberty together in the

height of the honey-harvest; but to find queens a week or more old, all dwelling in harmony, at a time when robbers were so thick that a tent was required to work with the bees to any amount, seems a little singular. Has any one else had a like experience?

SKUNKS IN THE APIARY.

Under one of the hives at the end of the apiary nearest the woods which come close to one side of the same, and which act as a windbreak, was a large bumble-bee's nest, judging from the number of bumble-bees which were seen going in and out a couple of weeks ago. I had known that they were there, for some time, and had left them from curiosity, showing them to visitors when they came. One morning in passing by this hive I saw that the nest had been dug out the night before, and the bees and most of the comb eaten. One bumble-bee and a little comb was all there was left of the once prosperous family. I was sorry, for I believed this was only the commencement of a raid on my hives, for this is not the first time I have been bothered with skunks. The next night but one the hive next where this bumble-bee's nest was, was disturbed; and now the apiary is visited nightly by these gentlemen. I am about setting traps for them, but I should have much preferred that they stay away, for it is no pleasure for me to have any thing to do with them. Their mode of procedure is to go to a hive, keep scratching on the front of it till the bees come out, when they catch them and eat them. In this way the hives visited the most are badly depopulated; and if they are not caught, much harm to the colonies is the result. If the hives were well up from the ground they would not be troubled; but where low down, the only way I know of is to catch and kill them. I think that they prefer the bees with honey in their sacs, and I believe that they scratch on the hives so that the bees will partially fill themselves with honey, for dead drones and some workers are thick in front of some hives, yet none of them are touched.

G. M. DOOLITTLE.

Borodino, N. Y., Aug. 16, 1889.

I am very glad, friend D., that you have mentioned this matter of ordering queens for hives when they are not queenless. Over and over again novices have imagined that their hives were queenless, and sometimes have bought expensive queens, only to have them killed in trying to introduce them. You may remember that I have repeatedly urged that unsealed brood should always be found in every hive. While a colony is rearing a young queen, and just about the time she is taking her wedding-flight, I should greatly prefer that there be some brood in the hive for the very reason you mention. A glance at this frame of brood, to see when they have queen-cells started, will always tell when any thing has happened to the queen. Now, in your case I should by no means take out this frame of brood and put it back, when I wanted to introduce the queens. Just let it alone; and, if you will excuse me, neither would I roll the queen in honey. Whenever we have reason to suspect that a colony is queenless, and find queen-cells started after giving them brood, I should let any laying queen loose at once without any ceremony. It has been such a very rare thing in our experience to lose a queen under these circum-

stances, I prefer to take the risk of loss. Besides, I do not believe the risk will be much if any greater than by any other mode of introducing under such circumstances. Please remember, however, the conditions. The colony must first have been queenless, and without any brood from which to rear a queen. Now give them some brood, and, after the cells are started, to indicate you have made no mistake, they will accept any laying queen let in by any method that is handiest; and turning her loose at the entrance is just as good as any other way. If, however, robbers are troublesome, I think I would wait until so near dark that no robbers will be flying. I do not remember of ever finding several virgin queens in a hive under such circumstances as you mention. —In regard to skunks, why not poison them, as I mention in my California notes? A method of poisoning is also given in the A B C book. One who is acquainted with the habits of skunks can tell at a glance where they have been at work, by the scratching of gravel and weeds in front of the hive, and also, usually, the marks of their claws on the hive around the entrance.

BEE-VEILS.

THE GLASS FRONT.

IF you will excuse another head-dress for beekeepers, I beg leave to introduce to your readers what is known as the "Ideal" glass-front veil. The great objection, at first urged, of the moisture of the breath forming upon the glass in cool weather, and thereby obstructing the vision, has been overcome in adjusting the glass a little higher, bringing it above the mouth, the breath passing through the veil below; but I must admit that our manner of fastening glass in the body of the veil has not altogether succeeded against the excessive heat in the extreme Southern States for long-continued use.



THE GLASS-FRONT VEIL.

The majority of veils made have been of grena-dine, rubber cord at top and bottom, some preferring the bottom loose to tuck under the vest or suspenders; but my "better half" suggests a cord with a slip-knot below, by all means to come around the dress collar and hook on the dress button, for the wives and daughters. For the glass front we lay claim to the following advantages:

Convenience of arrangement; absolute protection of face and head; freedom of vision; while the glass is large enough to allow a good range of vision, it is so light and strong and ingeniously inserted in the body of the veil as to remove all objections to glass on account of liability to be broken, hence durability. It will not injure the eye by continued use, as friend A. H. K. Blood, of Quincy, Mass., wrote me has happened his eyes by the use of the no-glass veil.

The glass will be broken only through carelessness, and will last for seasons. The sense of complete comfort, and freedom of vision, will more than pay for the care of the glass. I am a practical bee keeper who believes that there are times and conditions necessitating the most experienced to protect their face; at least, discretion is the better part of valor.

JNO. C. CAPEHART.

St. Albans, W. Va., July 19, 1889.

We tried your glass-front veil, and did not like it. The glass would continually get out of range—one eye would look through the glass and one eye through the meshes of the veil. The only way to remedy this difficulty would be to make it larger, and that would be impractical. Again, moisture would with us rise from the breath and collect upon the glass, and then it was about as transparent as—well, cheese-cloth. A fine silk brussels-net facing affords almost no obstruction to the eyes, and at the same time it may be made large enough so that it is not at all likely to get out of range. Our glass front finally got broken, and we thought we were careful too.

MY EXPERIENCE WITH CARNIOLANS.

GREAT SWARMERS, AND NO MORE GENTLE THAN ITALIANS.

LAST September and October I bought eight Carniolan queens of Dr. Morrison. I had an unusual amount of trouble in introducing them, losing three. One of the three was apparently introduced and then was missing. I thought perhaps she was a virgin queen, and flew out to meet the drones. I think Dr. M. afterward stated in GLEANINGS that he failed to get his young queens to lay in September and October. At any rate I could not persuade them to lay, and I do not think I raised a bee from one of them until spring. Two of the fine queens were lost in wintering, from lack of stores—the only ones lost in winter out of 37 colonies. This left me three to commence this season with. They bred up rapidly, and began to swarm in May, and have swarmed ever since, or would if permitted to. I think they are rather more inclined to swarm than Italians or blacks. All three hives after swarming filled up with bees from the young queens, and swarmed—one the 12th of July, in a dearth of honey, and one last Friday, Aug. 16th, with no honey coming in. It was a rousing big swarm. To-day I have returned them. I will tell you the condition of the hive:

Common shallow L. hive, 10 frames, and set of sections over them, with no honey-board. Were the sections full of honey? Not a drop. The first comb removed, an outside one, had no honey in the outside; the other side was perhaps a third full, and a few capped cells. The next two combs had

some honey, but no brood. The remaining seven had brood and honey, and perhaps 5 queen cells capped, which I removed. Then I returned the swarm which stood close by. I should have done it the same day, but I had other work to do. I do not see that they handle any better than the gentle strains of Italians, though I have not had enough of them to give this point a thorough trial. With regard to their honey-gathering qualities, I can form no opinion in this disastrous year.

Walpole, N. H., Aug. 19, 1889. J. L. HUBBARD.

MRS. HARRISON WRITES A BLUE LETTER.

WHAT ARE YOU GOING TO DO ABOUT IT?

WE received a letter lately from Mrs. Chad-dock, who is still playing on the same harp. She says, "It does not pay to bother with bees in this part of the country. I have said so before—I say it again." She is selling honey at 10 cents per pound. How does this compare with the price of honey? I sold six gallons of blackberries at 10 cents per gallon, the purchaser picking them. "Just as nice blackberries as I ever saw have been selling all the season in Ipava for 10 and 12½ cents a gallon." "Wheat crop is poor—some kind of a bug is in the stalk; oats lodged, and wasted about a third."

I saw in the morning's paper that oats were selling at a railroad station in an adjoining county for 18 cts. per bushel. It would be well for those who are continually complaining of the low price of our product, to compare it with other agricultural pursuits. Compute the interest on land, implements, teams, seed, and labor, and note the result; also on our investments in hives, implements, etc., used in the apiary, and compare notes. There has not been a large crop of honey, so far, in Illinois, that I have been able to learn. To much rain, and such cool nights; yet choice honey in one-pound sections has been selling in this city and neighboring towns at a less price than I ever knew it to be sold at before. Some was sent here to a commission house who wanted it out of their way, and they sold it to a huckster for 8 cts. per lb. He must now get his money back, and he hawks it around for 10 cts.; at the same time, grocery men were retailing at 15 cts. "What are you going to do about it?"

Peoria, Ill.

MRS. L. HARRISON.

Mrs. H., suppose you stop raising honey and blackberries and oats, and, in fact, farm crops in general, what other business would you go into? There has been a constant demand—an unfilled want, perhaps—for some kind of business or industry that does not have its ups and downs. But no such thing has been found, that I know of. Remember the statistics Farmers succeed in at least making an honorable living, 95 times out of 100. No other industry makes a showing any thing near as good; and, in fact, the whole mercantile world makes a showing of 95 failures, sooner or later, out of every 100. I think that, in your own locality, large quantities of honey, blackberries, yes, and oats, have been sold at good prices, notwithstanding the short intervals when these things for a time went away down.

CASES OF SEVERE STINGING; WHISKY AS AN ANTIDOTE.

IS THE REMEDY WORSE THAN THE DISEASE?

HAVING seen the clipping referred to in the *St. Louis Republic* I will say that the circumstance was published in two of our county papers. One said that the man referred to, Mr. Henry Wright, was stung on one ear, and the other on both ears, which last I think is correct, and that he died from the effect of the stings in about 30 minutes. I don't know this to be a positive fact, but I believe it is. I was at Paris, our county seat, last Wednesday, and was told there that it was a fact. I can also give you some more instances of stings that were serious. I have a special friend that lives about nine miles from me, and I have the statement from himself, that, about three weeks ago, his wife received a sting on the back of her head which came very near proving fatal. She became deathly sick, and turned very sick at her stomach. She ate honey very freely, which she could not do when well, and drank whisky freely, which she could not do when well, and two bottles of liniment were used on her, called "Wonderful Light." She turned spotted all over. My friend thinks it was a very narrow escape.

Another case was my little boy, 10 years old, who received a sting on his left breast just a little below the heart, from a bumble-bee. He did not complain much for about half an hour, when he began to swell up in his throat, and could scarcely get his breath. When I saw him in that fix I went, for a doctor, thinking he would know what best to do; but while I was gone, my wife, who had a little whisky, gave my boy a little, and he was some better. When I got back with the doctor, which was only a few minutes, he gave some more whisky and some other medicine; I do not know what, but I think it was the whisky that gave him the relief. I am a strong temperance and prohibition man; but my wife had her arm broken some three weeks ago, and the doctor recommended whisky for her. I don't believe it did her a particle of good; but in the bee-stings referred to, I believe it did. There might be, and I believe are, other remedies that would answer in the place; but the doctors will recommend whisky; and as long as we don't know any thing better, we shall have to use it or take nothing.

I will give you one more case—that of myself. I received about 35 stings one day while hiving a swarm in the rain. I got them all over my hands and face, and neck and head, but I did not give up. I should very likely have got very sick if I had given up; but I kept going, and soon got all right again.

J. W. ROUSE.

Santa Fe, Monroe Co., Mo., July 20, 1889.

I am glad to hear you say that you are a strong temperance man. When I began reading your letter I felt afraid that you were not sufficiently aware of the danger of recommending such a remedy. Now, I do not want to be unreasonable, nor do I want to be considered a fanatic in the matter of temperance; but I do think that we had better let a few people die rather than to recommend whisky for every one who becomes frightened at the effects of a bee-sting. You have given us an instance of one man who died from the effects of bee-stings.

Now, is it certain that whisky would have saved him? and is it certain that your friend's wife was saved by whisky? In the case of the little boy who was in danger of choking to death, it was a desperate state of affairs, and I presume likely we should have done as your wife did. But, for all that, have we any good reason for thinking that it was the whisky that saved him? I have already told you of being stung myself, so that my throat began to swell in a way that frightened me. But the swelling ceased and disappeared itself, and that without any remedy whatever. In your concluding sentence it seems to me that you strike at a great truth that can not harm any of us to consider well, and put in practice. You say you should have been very sick if you had given up. Now, I do believe in keeping on at your work when you are stung, or when you are injured in other ways. I believe that nature will take care of things better if you keep on about your regular business—that is, within the bounds of reason. Perhaps while you keep at work you keep up the circulation; and Ernest, who is sitting by while I dictate, suggests that whisky may possibly start the circulation so as to help the system to rally and keep up till the effects of the poison begin to abate. If this is true, whisky may, in this way, save life in some cases. In this matter I feel a great longing for wise counsel from our ablest physicians—those, too, who are not prejudiced in favor of whisky. Nay, further: Let us all pray that the kind Father may guide us safely, and that Satan may not lead us astray in this matter of using so dangerous a poison as a remedy for bee-stings. Once more: It surely is better that a few people should die now and then for the lack of whisky (if they ever do, which I am by no means sure of) than that thousands upon thousands should keep dying continually, and in spite of every thing that the whole world is able to do, because somehow or other they get the taste of whisky and become enslaved by the bad habit.

NO HONEY.

THE SEASON WORSE THAN THE TWO PRECEDING.

THOSE were false prophets who predicted a good honey crop this year. It is even worse than the two or three preceding years. The Middle Atlantic States have been subjected to a literal downpour of rain for the last three or four months, with a fair prospect of a continuance of the same. Apple-bloom was about two weeks earlier than common, and the weather was warm and reasonably fair, so the bees did well and got a good start. Some of the strongest colonies prepared for swarming. Locust, which is abundant here, and poplar (tulip) came into bloom early, following closely the fall of the apple-blossoms, and the bees for a day or so after the opening had warm weather, and fairly tumbled over each other when carrying in their harvest. But the second day after the honey-flow, came the flood of rain, which did not let up till the locust and poplar blossoms were destroyed. White and alsike clover were in the meantime pushing out their

blossoms, but the bees could snatch only an hour now and then—seldom a whole day—to gather the nectar. Some of the very strongest colonies filled a case of sections, mostly in a skimmed, rounded-off, indifferent manner, after their fashion when supplies are scarce.

The rain has continued, day and night, all the time; and the bees had to live partially on what they had gathered. If it ever clears up, the asters, goldenrods, heart's-ease, and other fall honey-producing weeds will give a good fall crop, the wet season having given them a good start; but that little champion "if" stands in the middle of the path of prediction, defying the wisdom of sages. No honey worth naming is the return from all of the Atlantic States, which I believe will include all the country east of the Alleghanies.

E. E. EWING.

Rising Sun, Md.

TROPICAL FRUITS.

DESCRIBED AND PICTURED BY ONE OF OUR MISSIONARIES; ALSO SOMETHING ABOUT THE FRUITS OF THE MISSION WORK.

DEAR BROTHER:—Most of the fruits in this country grow in their natural state; and when your horticultural readers see what splendid specimens we have they will wonder what they might become with proper culture, and effort at improvement. Many of the larger fruits, such as the huge "jack-fruit," on the upper left-hand side of the picture, grow on very big trees. In the States they would be classed among forest-trees, and they appear very strange to the new comer, with these watermelon-shaped fruits hanging from the trunk or larger limbs, just as though they had been artificially tied or fastened there. The durian (*doo-re-en*) tree is also a big one; bigger, indeed, than the "jack." It grows forty and fifty feet, with a spreading top. There is one, however, in our compound that shoots up thirty feet a straight and rather rugged trunk, and then suddenly spreads out, umbrella fashion. The coconut is the most kingly and majestic of all trees. The green coconut is seen on the left next to the "jack." A coconut orchard is a sight never to be forgotten. Their slender, graceful stems, rise from thirty to fifty feet, unbroken by any branch or bump, and terminating in the victorious cluster of waving flocks. The trunk is a drab brown, the branches a rich green. The seashores are here and there lined with orchards. Only last Saturday we (Chinese schoolboys, teachers, missionaries and all) went across the harbor and spent the day picnicking under the shade of a coconut-palm orchard. We bathed in the surf, ate green coconuts (the pulpy meat of which is very nice), lunched, gathered shells from the beach, and toward evening were rowed home over the two miles' journey by Chinese boatman. They stood in the wide rear end of their "sampans," and propelled their boats, facing ahead, by holding the end of their right oar in their left hand and the end of the left oar in their right. I leave it to your readers to find out how they could do this, but I leave them with the assurance that hundreds of them earn a livelihood working in just that position in rowing.

The small round fruit with white pulp in a dark purple shuck is the mangostine. It is seen just at the bottom, on the right of the picture. This is a most luscious and refreshing fruit. The flavor of

a rich grape comes the nearest to it of any thing you have in the States. It is about the size of an ordinary apple, and the tree strongly resembles an apple in shape and in the appearance of the leaves and fruit. The shell makes an imperishable dye, like the walnut shuck. It stains a knife black, and nothing but the juice of the pulp will remove it.

The small fruit, of a hairy appearance, down in the left corner, is the rambutan (*ram-boot-an*). Its name means "hair." *Rambut* is the Malay word for hair. The fruit is inclosed in a leathery husk or skin which fits closely upon the egg-shaped ball within. When it is opened, the fruit looks like a California grape, but is not so acceptable for eating. It has a big seed, and the juicy, tart (or sweet) pulp adheres firmly to the seed. It is eaten by being put into the mouth, and worried and sucked until the juice is all extracted. It makes fine jelly. Most fruits here are sub-acid, although the oranges on the island are very sour. Some may be seen on the tureen.

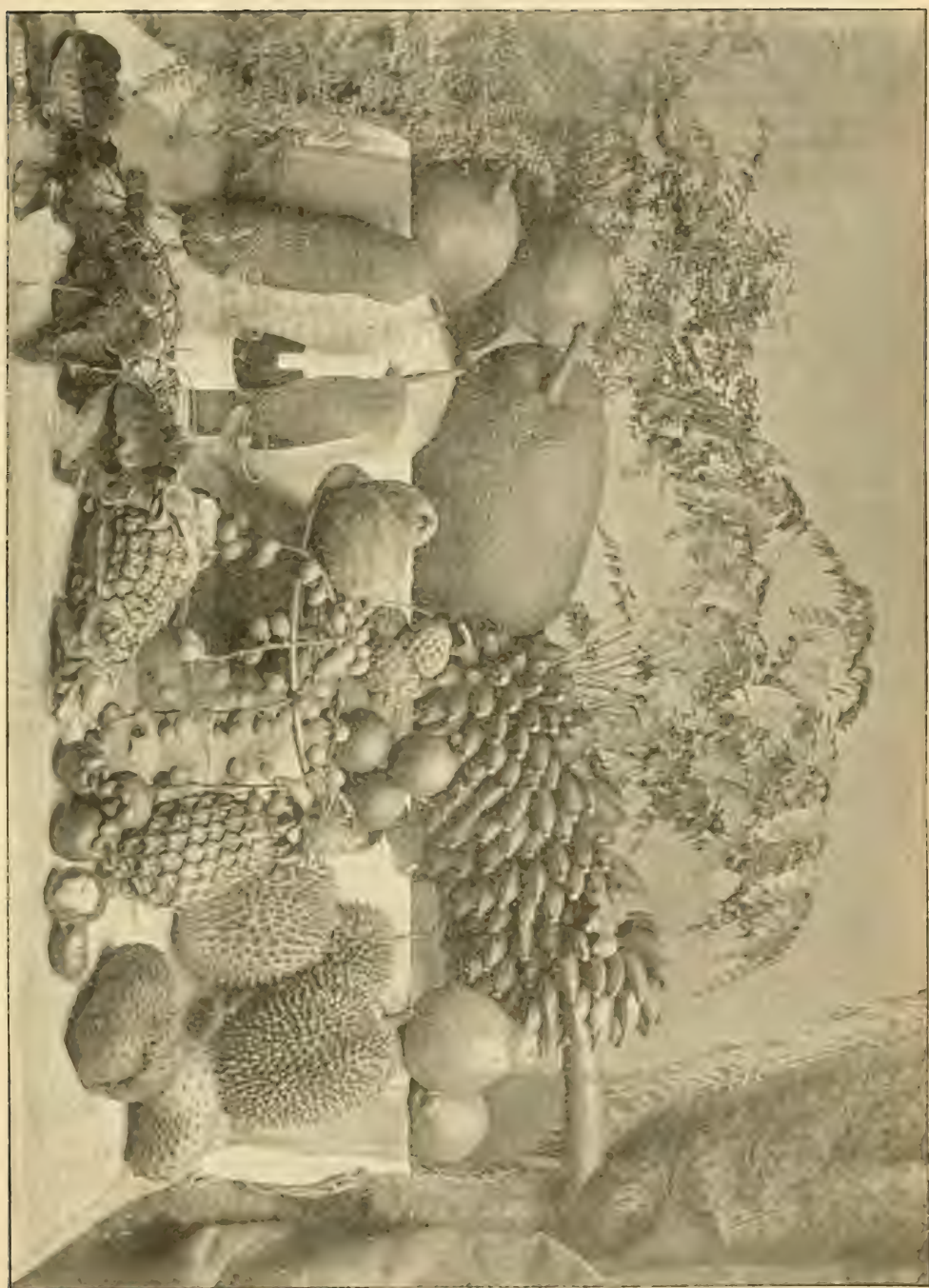
The fruit on the left—long, labeled, and corked, is exceedingly common here. More of this is consumed than of any other or all others combined. It produces a peculiar sensation when eaten, and causes sound-minded people to do very foolish things. Other varieties of the same species flourish in America, but I think it will be abandoned there after a few years. It affects Tamils and Chinese just the same as Englishmen, and yet is a source of very great revenue to the Government. I think all who see the picture will agree with me that it is an evil thing, and should be cast out, root and branch.

I ought not to leave the fruits without mentioning how the *durien* is eaten and relished by some, and how it is not eaten but disliked, even hated, by others. The pulp is very soft, having the consistency of a rich cream custard, which is distributed over the surface of a seed about the size and shape of a bantam's egg. The pulp is kept in shape by a thin film covering the custard. If you add a strong extract of the odor of Limburger cheese and a slight onion flavor, you have the durien. It is very difficult to learn to eat it. Some never learn; but when once acquired, the taste for it grows until it becomes almost a passion. I think there is no fruit in the world so fine. They sell for ten and fifteen cents a pound. Two crops of all fruits grow here every year.

But there are other good fruits I will mention in closing. We have in our Anglo-Chinese school 360, mostly Chinese boys, with their smooth-shaven heads, long pig-tails, and wide coats and trowsers. I teach seventy of them every day, and I have learned to love them dearly, and some of them have already learned to know and to love Jesus Christ.

We have sixteen of them in the boarding department, most of whom come from the wealthiest Chinese homes in this city of nearly 200,000 people, most of whom are Chinamen. One of these boarders is a bright fellow of fifteen who is studying Latin, English analysis, English history, and advanced arithmetic. He is something of a musician, and draws beautifully for one never taught. He heard the Child's Story of the Gospels read at morning prayers for three years; he heard and saw Christianity simplified, and soon came to know and love Jesus. He gave his whole heart to him, and not a day passes but he regularly prays. He has a

TROPICAL FRUITS FROM SINGAPORE: FROM A PHOTOGRAPH FURNISHED BY H. W. MINSON.



Bible, too, which he reads in English. On last Sabbath for the first time, he having asked to go to our church with me, went up, and, kneeling at the altar, commemorated with us the death and sufferings of Christ. How my heart rejoiced to see it! I brought the cup to him, and by faith I could see him, years hence, preaching Christ to his people, and giving the cup to them as I was then giving it to him. Let all who pray, ask God to bless this dear boy, and make him a blessing to his people.

May 13, 1889. R. W. MUNSON.
Singapore, Straits Settlement, East Indies.

Friend M., we are exceedingly obliged to you for the beautiful picture and the excellent photograph from which our people have succeeded in making so good an engraving. The picture and description fairly make one's mouth water. I think I should especially like that great big jack-fruit, for I almost always like any thing that anybody else does; and as they are God's gifts, I think it is our duty to be careful how we pass them by with careless indifference. If you had the arranging of the display, I don't quite see why you put in the bottle and glasses. But very likely somebody else who does not feel as you and I do did the arranging. You did not tell us about the beautiful ferns; but I suppose they were put in to set off the whole. I suppose it would not be possible to have these fruits shipped to us as they ship bananas, pine-apples, and cocoanuts, else we should have had them before this time. And now may God bless you in the work you allude to in your closing remarks. I was especially touched with the expression, "I have learned to love them dearly." Dear brother, that is the kind of spirit that wins souls. When we love humanity for Christ's sake, we are on the right path; yes, when we get where we can love even our enemies, the work is almost done; for, in the majority of cases, before we have loved them long they are enemies no longer. We say amen to your concluding sentence. May God bless not only that dear boy, but a thousand more, and raise him up to do the work that needs doing.

CUBA AND ITS HONEY RESOURCES.

OUR OLD FRIEND A. J. KING DISCUSSES SOME OF THE POSSIBILITIES OF DEVELOPMENT ON THIS ISLAND; AN INTERESTING LETTER.

OCCASIONAL letters of inquiry, and articles from time to time in your columns, relating to bee-keeping in Cuba, induce me to contribute a paper for the information of any who may be thinking of emigrating thither in order to better their condition as honey-producers or otherwise. To premise, I have visited the island three times, and, in the aggregate, spent more than a year in founding and operating apiaries, so that what I have to say is derived from experience rather than theory or second-hand information.

The island of Cuba, from its most eastern point to its western terminus, is about 700 miles long, and has an average breadth of about 66 miles. A range of mountains, occupying nearly a central position,

traverses its entire length, in miniature much resembling the backbone of a fish. In the eastern portion they attain a height of from 5000 to 6000 feet above sea-level. As they approach the west, they gradually diminish in height and abruptness, until within 300 miles of their western terminus they will average only from 1000 to 1500 feet high, and the declivities are so gentle that in many portions they admit of profitable cultivation over their entire surface. Numerous small streams, originating in these mountains, flow north and south to the sea, being often diverted from their courses by solitary peaks and ranges of hills, giving rise to numerous beautiful and highly fertile valleys, capable of supporting a dense population. While most of the coast-line is undulating, yet there are in some portions near the river-mouths quite extensive tracts of level lands, sometimes marshy. Considerable forests abound, especially on the eastern and southern declivities, and are, or should be, valuable on account of their fine hard woods. I obtained at one mill 19 varieties, cut in the immediate vicinity, embracing ebony, cedro, hookero, mahogany, and others equally valuable, but of names not easily pronounced. The proprietor was under contract to furnish a railroad company several hundred thousand ties, 5x8 inches square, and mostly mahogany. It seemed to me a pity that such magnificent timber, fit for the finest of cabinet work, should be used for such a purpose.

ITS VEGETATION.

Nearly all vegetables raised in the United States do fairly well here. Northern fruits are cultivated to a very limited extent on the higher portions of the island; but as a rule they are not well adapted to the climate. Tropical and semi-tropical fruits in great variety are plentiful in nearly all places, and at all seasons of the year, so that one does not greatly miss any thing in that line. Oranges, limes, lemons, etc., which in our own Florida require for their successful culture time, money, and knowledge, grow here in profusion with little or no attention.

The production of sugar, tobacco, and coffee, are the three leading industries depended on for money-making. Yet with a little American sagacity there are scores of other occupations which might be made equally remunerative, both in the agricultural and manufacturing line. A field of sugar-cane, once planted, is good for from 10 to 20 years without replanting, and the enriching of the soil by manuring is something I never yet have witnessed in Cuba. To give your readers a more concrete idea of the immense fertility of Cuba lands, it may be stated that, in 1878, over one-third of all the world's supply of sugar was produced on this island. Couple this with the fact that only a little more than one-fourth of the land is under cultivation, and only a portion of this devoted to cane-fields, and you begin to realize something of the future possibilities of this neglected country, should it ever come under the starry banner of Uncle Samuel.

I should like to speak of the romantic and beautiful scenery of mountain and valley; the caves and grottoes glistening in the torch light like millions of diamonds; the hillsides covered with royal palms (the queen of all trees); the splendid water, the general healthfulness of the climate, and a dozen other subjects of more or less importance; but as I am writing for a bee-paper I must forbear,

and devote the remainder of what I have to say, more in a "bee-line."

A. J. KING'S APIARIES.

On my first trip to Cuba I took 100 colonies of Italians, and located them near Havana; but as this apiary has been noticed in several back numbers of GLEANINGS, I refer the reader to those notices. The second apiary I located near Puerto Principe, about 500 miles east of Havana, starting with less than 20 stocks of Italians, and transferring native bees. They were increased to 400 stocks; but as I could not remain, and the help provided for their care being mostly native, and all inexperienced in modern bee-keeping, they have not prospered as they surely would have done under proper management. The third and fourth apiaries I established near Sagua la Grande, 180 miles east of Havana, on the headwaters of the Sagua River, midway between Toboca on the north and Cienfuegos on the south side of the island. One of these was fitted up on the best principles, and with all modern appliances, at a cost of over \$3000. It had just commenced to realize our most sanguine expectations, and would to-day, I believe, be the *finest apiary in the world*, had it not been for that

TERRIBLE CYCLONE

which last year devastated many parts of the island, and of which Sagua was the center. The hurricane, accompanied by a terrible downpour of water, continued with unabated fury for many hours, completely wrecking every thing in its course. Sagua alone, a place of 6000 inhabitants, suffered to the extent of 100 lives lost, and \$4,000,000 worth of property destroyed. The forests were wrecked. The water in the river backed up and covered large spaces never before inundated, and of course the new apiaries shared in the general ruin.

A WELL-EQUIPPED APIARY DESTROYED.

The main shed in our best apiary was 300 feet long, 12 feet wide, and 10 feet high. The posts were 10 inches in diameter, set 10 feet apart and $3\frac{1}{2}$ feet in the ground. The peak roof was well provided with rafters, and heavily thatched with the leaves of the fan palm, which extended down below the eaves to within four feet of the ground. The extracting-room, connected with one end of this shed, was a frame building 20 feet high, of fine proportions, and built in the most substantial manner. Throughout the length of this shed and extracting-room, and 500 feet further, down to the shipping-room on the river-bank, was a narrow-gauge railroad track, provided with low platform cars on which the long boxes of comb were carried to and from the apiary to the extracting-room and thence with their 1200-lb. tierces of honey to the shipping-room. Our extracting-room was provided with a receiving-pan of galvanized boiler iron, 14 feet long, 7 feet wide, and 14 inches deep, with large faucet at one end by which the honey was conveyed into the bungs of the tierces, with no dipping or lifting at all. The honey from the uncapping-table, after passing through a strainer, also emptied into this pan. The two-story hives, one foot apart, were placed just inside the line of the eaves of the sheds, and faced outward from each side, so that the sheds were comparatively free from bees, and were cool and invigorating, even in the hottest weather. The frames in the upper story came flush with the top of the hive, were covered with enameled cloth on which the flat cover fit closely, and were kept

from warping by two cleats, which also held them securely in place. By this arrangement the cover is never stuck fast, and the tops of the frames are always clean. The fact that, with an assistant, I have extracted 126 of these top stories in a single day, and replaced the combs, will give the reader some idea of the value of the most perfect appliances possible in our work. This apiary is rebuilding, and replenished under the direction of an American, although born in Cuba, and will doubtless speak for itself soon.

A. J. KING.

New York, August, 1889.

To be continued.

Why, friend King, what a grand place Cuba would be for gardening—no frost, no prolonged drouths, and, to crown it all, no need of fertilizers or manure! Why should she not furnish the world with sugar, or almost any thing else? I confess that I for one am greatly obliged to you for these interesting particulars. No wonder that Cuban honey can be sold at a low price.

H. R. BOARDMAN REVIEWS THE SEASON.

MIGRATORY BEE-KEEPING, AND ITS POSSIBILITIES.

I AM always quite anxious, at the close of the honey season, to compare notes with my neighbors; and especially is this so when I am short in my honey crop, as is the case again this year. If any one has a larger yield than I have, I want to know it and find out how he got it; accordingly, when the season closed and I had taken a long breath and a brief inventory of what had been accomplished in my own apiaries, I started out on a tour of inspection among my neighbors. I have been able to gain but the one consolation—that I am no worse off than my unfortunate neighbors, or, in other words, that my neighbors have done as poorly as I have. I found about the same condition everywhere I went. At every apiary I visited it was the same story of cold and wet weather in the fore part of the season; starvation at the critical time when breeding would have furnished bees for the harvest, and little or no surplus is the universal result. Where colonies were braced up by a little judicious feeding at the proper time, the extra care and expense of such feeding was liberally repaid, *as it always is*.

I was pleased to find in one instance an exception to this general poor condition of the apiaries. It was in the Bronson apiary of Mr. S. F. Newman, of Norwalk. You may remember that he reported quite a boom at that apiary last season on pea-vine clover, which is extensively raised in that locality. This apiary is again showing the advantages of location at particular seasons. I found the bees at this place doing good work in storing surplus, while they were almost entirely idle at other localities only a few miles distant. Mr. Newman was quite pleased over his good prospects, as well he might be.

This suggests the subject that was uppermost in my mind in my excursions, and about which beekeepers seem anxious at the present time to learn more.

MIGRATORY BEE-KEEPING.

Does it pay to move bees to catch the local honey-flow? and if so, how can we best make it pay? I

think it certainly does pay, if—and upon this it hinges the whole of migratory bee-keeping. If we could determine beforehand as to the resources of the different localities within our reach, so that we could have our workers at the desirable place in time for the honey-flow, then it would pay to move our bees to these best places rather than leave them in a poorer one.

Bee-keepers are beginning to realize, as they never have before, the value of location. The difference in the honey-flow of places only a few miles apart is sometimes astonishing. But it is important that we know of this difference before the honey-flow has demonstrated it, or else we are too late to take advantage of it. We can sometimes guess pretty close, and then, again, we might guess and get left. To illustrate: I decided this season to consolidate my apiaries as far as possible, in order to curtail expenses. Of course, I desired to abandon the poorest locations in favor of the best. Accordingly, I abandoned No. 2 and moved the bees, part to Berlin, which has always been my best location, and part to my home apiary. Hartland apiary I also proposed to abandon, and move the bees to the same yards, as it had always been my poorest location. But one thing crowded upon another until near the beginning of the honey season; and the prospects being so very discouraging, I changed my mind. Tiering up the colonies in this yard with empty combs, I left them to care for themselves, except an occasional visit to see how they were getting along. Now see how wisely I had planned: Hartland apiary proved the best location I had this season, and Berlin the poorest. That was the result of local showers, a cause entirely beyond human foresight.

Last season, in a trip out upon the prairie, ten or twelve miles distant, I discovered that the bees there were doing quite rapid work upon the extensive buckwheat fields raised in that locality, while the bees in my apiaries were entirely idle. I rushed home and prepared a load of bees, and moved them to this locality with as little delay as possible, for the bees there had been doing this good work already for about ten days. They were busy at work bringing in buckwheat honey in a few minutes after being released, as though they had known all about these prairie fields for a long time. In just one week I visited them again. The work they had done in those seven days surprised and delighted me. In preparing these bees to move, I shook them off the combs into hives with empty frames, with only starters, so they began anew without a cell of comb or a drop of honey, unless they were thoughtful enough to bring it with them. I found at this visit the hives averaging two-thirds full of most beautiful all worker comb, well stored. But here the work stopped. Cold and unfavorable weather came on, and continued until the bloom was past. Had I been able to place my bees there ten days earlier, and had favorable weather prevailed during the bloom, the result would have been very gratifying. As it was, I decided that the seven days' work that I did get paid me for moving. I felt quite enthusiastic over the result, and thought I saw some grand possibilities in the future of migratory bee-keeping. I decided to have my bees out upon those prairie fields the next season, and not be caught napping again. This was among the localities visited by me; but the prospect looked quite different from last season. The

usual amount of buckwheat had not been put out, and the locality offered no inducements for moving my bees there again. This season I was a little disappointed—yes, sir, I was; yet I shall endeavor to keep posted in the local prospects for a honey crop, and move my bees whenever I think it will pay to do so. Although I failed to discover any desirable fields to which I could profitably migrate with my bees, I did discover in the bee-yards of my neighbors quite a large-sized bone which I may take occasion to pick with them some time in the near future.

H. R. BOARDMAN.

East Townsend, Ohio, Aug. 1, 1889.

Friend B., you have given us some very valuable points. I am very glad to hear this testimony in favor of the peavine clover, for I feel sure that this clover is a fore-runner of prosperity in any locality, not only for the bee-keeper, but for the farmer; for whether he plows it under or whether he cures it for hay, he does a good thing, as a rule. I have long thought of just this very thing you mention in migratory bee-keeping; and, you may remember, in the A B C book I suggest planting colonies in different points throughout the country, to indicate what is going on. This fact will confront us, however, that one colony will do a pretty big thing where 40 or 50 will not. I think, however, it will pay the man who proposes to move his bees to catch the honey-flow, to test different points, say within ten miles or more of his home. I was also already aware that the locality that proves best one season may be the next just the other way. I did not know, however, that it was local rains that caused it. The crops a farmer may take a notion to raise may have a great deal to do with it, as in your case of the buckwheat. Why not have some land in a buckwheat region, or rent some land, or, if you choose, pay the farmers in that vicinity so much per acre for having them sow buckwheat rather than some other crop? Furnishing the seed will often turn the scale.

AMONG THE BEE-KEEPERS OF VERMONT.

A VISIT TO MR. HOLMES' APIARY AND OTHERS'.

THE next day, after visiting awhile, and enjoying this view, we were driven northward to the Cream Hill apiary of Mrs. Wolcott, of Shoreham, whose husband, now deceased, was a leading and successful bee-keeper. This apiary is now managed by Mr. R. H. Holmes, who has an apiary of his own in another part of the town. Here were 142 colonies in chaff hives, numbered and arranged in groups. The spring count was 122, and 300 lbs. of comb honey was secured. Here was the best and most convenient little honey-house and work-shop combined we have seen anywhere. It was 16 by 22 feet, one story and a half high, and clapboarded and painted. Below were two rooms, the honey-room occupying the south half and the work-room the remainder. The latter contained a stove, and was fitted with convenient work-benches. Above was a loft with one window in the south end, and connected with the work-room by convenient stairs.

Every thing seemed adapted to its purpose, and was neatly arranged. A good part of the crop was

in the honey-room, and was very fine. The shipping-cases here were marked in colors, and with the most tasty and attractive stencil designs we have seen.

The next apiary visited was that of B. W. Hall, a few miles away. He is a manly and gentlemanly young man, the son of a farmer. He keeps bees because there is money in it, and not from any special taste for it. He has 70 colonies in chaff hives, with *movable outer cases*. He had in spring 53 colonies, and obtained 2000 lbs. of honey, comb and extracted, the former in 2-lb. sections.

He has a honey-house similar to Mrs. Wolcott's, though larger. After being courteously entertained here we made a call on Miss M. A. Douglas, well known as the secretary of the Vermont Bee-keepers' Association, and a successful lady bee-keeper. Our time being limited, we were obliged to make a hurried call. This lady had in spring 29 colonies; increased to 34, and obtained 700 lbs. of honey in 2-lb. sections. Her comb honey was the finest exhibited at the Bay State Fair, held in Springfield, last fall, and was awarded first premium. She commenced in 1883, and finds she can do most of the work herself. When there is occasional lifting or heavy work she calls on one better fitted to do it.

We next visited the home yard of Mr. Holmes; but as he was away we were obliged to postpone our interview; and instead of continuing our journey by rail we availed ourself of friend Larrabee's hospitality another night. The next day both of us dined with Mr. Holmes, and inspected his apiary; and I must say that the finest and neatest prepared sections of comb honey we have seen were at this gentleman's place. In scraping sections he uses a narrow-handled pocket-knife, with the thick blade ground short and to a point. He is assisted in this work by his wife and daughters.

In the spring of 1888 he had 92 colonies; increased to 100, and obtained 2200 lbs. of comb honey in one-pound and half-pound sections, which are put on the market both glassed and in paper cartons. He uses the movable outer cases for winter, though somewhat different from those used by either Crane or Manum. He packs beneath the colony also. He uses the Langstroth size of frame, because on it bees are more salable. The hives are painted and numbered, and arranged in rows. Mr. Holmes was at one time in the employ of Mr. Crane, and partly follows his methods. He was formerly secretary of the Vermont Bee-keepers' Association, and is now its president. We found him well posted and thoroughly practical. An opinion expressed was first carefully weighed. He is a professing Christian, and, in our opinion, is a reliable man.

After a profitable call and very satisfactory dinner here, friend Larrabee took us to the train, where we took leave of him, hoping that we might have an opportunity to return his favors, and feeling that the bee-keeping world would hear from him in the future. This winter he was elected secretary of the Vermont Bee-keepers' Association, Miss Douglas having resigned. We would whisper aside, and in confidence to our friends, that, though John is very kind and friendly, his hair is inclined to be sandy, and it won't do to pull it roughly.

Our next stop was with Mr. N. V. Forbes, a bee-keeping farmer in West Haven. Having a good location he has done well, and thinks some of renting his land and attending to the bees. He had 75 colonies, and a crop of 2000 lbs. of comb honey as the

season's results. In 1887, from 80 colonies in two yards he obtained 6000 lbs.; and in 1886, 80 lbs. per colony. Mr. Forbes kindly took us to visit Mr. Eugene Lee, of Benson, a neighboring bee-keeper, and quite an extensive dairy farmer. Among those bee-keepers we could not visit were V. V. Blackmer, of Orwell; H. L. Leonard, of Brandon; W. H. Proctor, Fair Haven, and many others.

Mr. Blackmer, a bee-keeper of ten years, has 100 colonies, which have paid their way from a small commencement. Mr. Leonard has 100 colonies. Some of the bee-keepers in the region have become well off through their bees.

Pawtucket, R. I.

SAMUEL CUSHMAN.

To be continued.

INTRODUCING.

A METHOD OF INTRODUCING QUEENS TO FULL COLONIES, WITHOUT REMOVING A COMB OR EVEN OPENING THE HIVE.

THESE are many novices and others interested in bees who would buy a queen of a given race or strain if they could only introduce them in a simple and sure manner without opening the hive after dequeening it. Then there are the box-hive people and those careless people who allow their bees to build crosswise on the hanging frames, all of whom would buy queens if they could be introduced with safety. There are many who are afraid of their bees, and hardly dare open the hives at all. A man wrote me recently, saying, "I want a queen of your strain, but, to tell the truth, I dare not introduce her. My bees are very cross."

My method of accomplishing this end is as follows: On the day the queen arrives, or before, go to the hive where you wish to introduce her and dequeen it, either by drumming out or removing the frames. Adjust a small box-feeder, that can be closed tight to the top of the hive, directly over the combs, and so arranged that the bees can enter the feeder directly from the brood. Give them about a pint of thin syrup; close the hive and leave it for 24 hours in this queenless condition.

On the next day, about 4 o'clock, go to them with the queen that was received the day before, and, after turning in more of the feed, place the cage on the float, so arranged that all the bees can cluster over the screen-cloth on the cage, and "get acquainted with her majesty," as Mr. Root terms it. I do this so that the new queen, cage, and attendants, may absorb the same odor as the hive, rather than for acquaintance' sake, which I think is a more correct way of putting it.

After you make sure that the cage is above water, and will remain there, and that you have left plenty of room for the bees to pass over the cage, close the hive, and leave them until about 9 o'clock the next morning, when you will go to them again, remove the cage, and turn back the wire cloth at the provision end far enough to allow the queen to pass. Plug this entrance full of candy; pour a little syrup into the feeder, place the cage back on to the float, and close the hive. Do not open again for a week.

The above is almost infallible. I have used it two seasons successfully. I have allowed queens to leave cages after the first 24 hours, with success.

If robbing is rife, do all feeding at sundown, and do not release the queen until after 4 o'clock. For

introducing by this method to a hive which has just cast a swarm, precaution must be taken that I will not state here. The feeding drives the old bees to the field with a rush. Old bees are enemies to strange queens. Queens can be kept for several days without injury, by placing them, as shipped, in a small light-proof box in any dry cool place. I always keep mine in the honey-house on a shelf near a small window. During cool weather, take the box into the kitchen. I never feed queens honey while in confinement. It does more harm than good.

I do not introduce by the Peet method of attaching to the comb and removing slide—it is too fussy, amounts to nothing, and is fatal to the queen, in the hands of a novice. I am using the Peet cage, though I do not like it. It is expensive in every sense of the word.

E. L. PRATT.

Marlboro, Mass.

Friend P., while we publish your plan of introducing we want to protest a little in regard to the heading which you put on the article. Drumming out bees to get the queens is not a new method, but one so old that it was in use before movable combs were known; neither is feeding a colony to make them good-natured new; and I do not see very well how we are going to do this feeding without opening the hive. It is true, you may put the feeder on top of the hive, but then you must make an opening in the top board and have some sort of cap or box over the feeder.

In regard to the Peet method, I presume that I am the one who first suggested selling queens at the low price of one dollar each; and I think that, without question, during the past ten years we have sent out more queens by mail than any other one person—perhaps more than all of the rest of the world together. In fact, during all the spring, fall, and summer months, the queens are constantly on our table, ready to be mailed by the first train, to any one who wants them, south, north, east, or west. As a matter of course, it has been of the utmost moment to us to select some method, not only of sending queens by mail, but some plan that would permit our patrons to introduce them with the least possible risk. Well, after having tried so many different plans that everybody began to get out of patience, to say nothing of the expense of such experiments, we finally settled down on the Peet cage. We have used this cage for years, and I am firmly satisfied that, for a feeble queen (and they are generally more or less weakened by a long trip through the mails), there is no other plan to be compared with letting the queen right on the comb in the hive, and letting her help herself to the honey in the cells, at the same time having her in the center of the brood-nest, her natural and proper place. Queens get discouraged, dejected, and ready to die. I have oftentimes thought that they get homesick, just as we mortals do. Well, now, can any thing revive her drooping spirits, and make her feel as if she were once more at home among the loved ones, like being on a honey-comb, in the center of a hive? I do not believe on a float in a feeder. The feeding part is all

right. During a dearth of honey in the fall, a good heavy feed will contribute very greatly toward putting the bees all in a friendly and amicable mood, provided you do not get robbing started. I have replied thus at length, because of late there seems to be a fresh interest starting up in this matter of introducing.

HONEY IS DIGESTED NECTAR.

Shall the Great Big School of Humanity be
Taught the Truth, or shall We Now and
Then Keep the Truth from Them?

PROFESSOR COOK FINDS A LITTLE FAULT.

OUR friend Demaree has now a recruit—a doctor. This doctor—see last *American Bee Journal*—makes several assertions that just a little knowledge of chemistry would have prevented. Is it possible that our "M. D.'s" know nothing of chemistry? Such articles may possibly be excused in a lawyer, but from a doctor they are certainly indefensible. Even a lawyer should not attempt to enlighten the public on what he knows nothing about. His ignorance may be excusable; his misrepresentation and pose as a teacher are never venial. To say that nectar and honey are the same, or that sugar syrup fed to bees is identical with the honey placed in the combs, is to show entire ignorance of the subject. It is too bad that such men will write. Now, Mr. Editor, why do not you editors get a little blue litmus paper and a little copper sulphate, or, better, Fehling's solution, and prove for yourselves the truth of this matter? Then when such articles are sent in, throw them into the waste-basket. You would not insert an article about the king-bee. To say that honey and nectar are the same, is as absurd as to say that there is a king-bee.

Again, it is urged that calling honey digested nectar is revolting, and will injure the sale of this delightful sweet. This is fear with no cause to stand on. Honey is good, and *will be eaten*. Almost all our green peas are wormy. People know it, but they eat peas, and will so long as they are so good. To the uninitiated, the idea of eating oysters would be revolting. Here the animal is eaten entire, with the digestive canal and its entire contents. Yet oysters are good, and will be eaten *in extenso*, so long as the quality remains, and men have a taste for good food. So it will be with oysters. Truth and honesty are always the best policy. Better "tell the truth and shame the devil" than to preach lies and delight him, even though we could sell a little more honey.

VIRGIN'S BOWER.

Our friend Geo. E. Hilton sends me the following letter: "The inclosed flowers are from a plant that grows abundantly here in the swamps. It clings to bushes which it often entirely covers, and is a great favorite with the bees. In watching closely to-day I could see no pollen. As you will remember, I had a sample of the honey at Detroit. What is it?"

This is the beautiful "virgin's bower," *Clematis Virginiana*. It is not strange that Mr. Hilton did not see any pollen. This plant is dioecious; that is, the stamens bearing the pollen are on one plant, while the pistils which are to receive the pollen are on another. In such cases the flowers must secrete nectar to exist, as bees or other sweet-loving insects

must act as the so-called "marriage-priest." We have only to know the structure of such plants, to know that they are honey-plants. We may be glad that this clematis is a honey-plant, as it, like the goldenrod, willow herb, and clover, is exceedingly beautiful.

SPRAYING AND POISONING BEES.

Do not think me over-sensitive. I am sure I am not. I do not believe I have a morbidly sensitive hair in my capillary covering; but when I say that I was dumbfounded to read Mr. Alley's censure, in the last *Apiculturist*, of my earnest endeavor to inform all the people of the wrong and evil of spraying fruit-trees while yet in blossom, is to put it mildly. Think of an American, in the nineteenth century, and a Massachusetts man at that, urging against giving information on an important practical question because, forsooth, some person might make use of this information to work evil! Mr. Alley says I have informed the people how they may destroy bees; and thus the enemies of bee-keepers will have opportunity, and will use this opportunity to injure those whom they dislike. This is certainly a sorry opinion of our people. I believe it is a wholly unwarranted suspicion. The truth that it is dangerous and wrong, and utterly unnecessary to spray fruit-trees with poisons while the blossoms are still on, should be sown broadcast. Every fruit-grower should know and keenly appreciate the fact that, to poison the nectar in the blossoms, is to injure both his neighbor bee-keeper and also himself. He needs the work of the bees no less than does the apiarist. I would have laws enacted against this early spraying, and make the punishment both fine and imprisonment. Not that this is necessary to secure against the evil, but it would be a very rapid educator. I believe it is very important that bee-keepers take all pains to make the truth in this generally known. If people know the consequences, they will practice the correct method.

Agricultural College, Mich.

A. J. Cook.

Friend Cook, as a rule we prefer not to publish any thing criticising other journals or writers of other journals; but we trust that our good friends of the *American Bee Journal* and the *Apiculturist* will excuse us this time, especially as it comes from Prof. Cook, and as you give us so much truth. One little remark you let drop caused me to smile; viz., "Almost all our green peas are wormy." Some time ago my sister informed me that the peas we were selling had little worms in them that could be seen with a magnifying-glass. These worms are doubtless the larvæ of the pea-weevil. Of course, the peas planted contain no weevil, because we get them from northern localities where the weevil has as yet been unknown. Now, the question came up, "Shall we sell peas to people, knowing that the peas contain little worms that could be found with a magnifying-glass?" I said at once just as you say. If the peas are good, and no one can possibly discover by the taste the presence of these embryo weevil, without the aid of a magnifying-glass, I would certainly pay no attention to them. In fact, there is such a thing as making one's self disagreeable by being over-fastidious. At one time our folks in charge of the lunch-room informed me that there were worms in the rice. I suggested that it was probably near

the mouth of the bag, and that they could easily be removed. Then we could heat the remainder of the rice in the oven until all the germs were killed. Some of the boarders found it out, however, and there was going to be quite a breeze because we used articles for food that should be thrown to the chickens or into the compost-heap. Now, I have no doubt that good food has been thoughtlessly thrown away because of a certain foolish notion that nothing should ever be used where the worms have been found in it, even near the mouth of the bag. I attempted a little remonstrance; but public opinion was against me. In a few days after that, we had some high-priced chestnuts. Somebody found a *wormy chestnut*; whereupon I suggested that the whole bagful, which cost between five and ten dollars, be given to the pigs. They opened their eyes in astonishment. Wormy chestnuts and wormy apples are so very common that folks are used to them; and even if the worms should get into your mouth, there is no need of fainting away or of sending for a doctor. Now, I heartily agree with friend Cook. If people will refuse to eat honey because we teach that it is taken in at the mouth of the bee, and then thrown up in the same way, when it is put into the honey-cells, let them refuse; and the same way with green peas or with oysters; and I think exactly the same way about the dissemination of information in regard to spraying fruit-trees. I am sure that I have no neighbors, or, rather, no enemies, that would willingly poison my bees; and when it becomes necessary for me to keep the community in the dark, or in ignorance, I shall have a poorer opinion of my fellow-men than I now have. It is this same ignorance that has caused the foolish and wide-spread belief that comb honey is manufactured.

MORE ABOUT THAT INTERESTING EXPERIMENT.

FURTHER FACTS UPON HOW IT WAS DONE.

IN answer to the queries which you raise in GLEANINGS, p. 618, I will say it is true that I commenced June 7 with a single colony and its swarm, each of which contained nine frames. I divided the said colony, six days after it swarmed, into three colonies, and I also made one out of the swarm shortly after the brood was sealed, by taking the queen and the three frames which had the least brood, and a small share of the bees, leaving the remaining six frames ten days longer to make queen-cells, when I divided it again, making use of all the queen-cells. This made six colonies, so that I had not less than three frames in any of them. This brought me to the 27th of June. About the 5th of July I made three more colonies from the six, making nine in all.

You say you presume I did not get any brood from other colonies. No, not an egg nor a queen-cell, nor any stimulation whatever, other than the sugar I fed them, for that is what I set out to do, as I stated in the beginning of my report; viz., to compel them to draw out their own combs, lay their own eggs, build their own queen-cells, and hatch their own queens; and I did so.

I should have said in my report, that I had no other colony than the one in question, save one; for that spring, and the spring preceding, I sold my bees, keeping but two—one for honey, for family use, and one to experiment upon. Of late years I keep bees only for the love of them, and for the enjoyment of sitting under the cherry-trees and watching them at their work. The above, I presume, is an answer to your last query, viz., if I kept any account of my time. I can only say that there was no time lost; but if it must be considered lost, I can say that I enjoy that loss more than I do the profit (however great) or the employment of my time. I may say that I am an invalid, entered upon my 73d year, and am very feeble—more so than some in this vicinity 15 or 20 years older. Of course, then, my time would be of little consequence.

Whigville, O., Aug. 7, 1889

HENRY LARGE.

Many thanks, friend L. Your further facts remind me of my strawberry story in another column.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

HALF DRONE AND HALF WORKER.

I mail you to-day some Italian bees from a fine select tested queen reared this season. Five of the bees have heads and shoulders like drones, and abdomens like workers. They also have stings; and as soon as they hatch they crawl out of the hive on to the ground. All of the bees are fine yellow, three and four banded, except a few of the queer ones, which are black, like the one in the cage. This is the first queen that I ever raised that produced half worker and half drones, as I call them. As I do not recollect of seeing any account of such strange bees, I should like you to explain through GLEANINGS what they are, and whether you think there is any black blood in the queen by some of the queer bees being black. My bees have done very well this year.

C. F. GRUBB.

Jubilee, N. C., July 29, 1889.

Half drone and half workers have been noticed a great many times, and have frequently been mentioned. It is nothing more, I believe, than a freak of nature, or a malformation.

THAT NEW BEE DISEASE IN CALIFORNIA: LATER DEVELOPMENTS.

I am happy to say that the plague, of which I wrote, see page 583, is now apparently subsiding; and bees that have survived seem to be rapidly recuperating. Losses in the apiaries under my immediate control amount to about 250 stands—enough to make one feel decidedly sick, and to test thoroughly the virtue in man for which our ancient friend Job was celebrated. I am negotiating, with the view to acquiring new stock, should indications continue favorable. A feature of the disease is, that in all cases it doesn't prove fatal. A number of colonies that were badly affected last season have pulled through, and are strong and prosperous now. The same might be said of this season. I also put new colonies upon combs and honey from diseased hives of last season, many of which are in good condition to-day. I learn from an old resident, that this is the third time bees have died in large numbers here within twenty years. Whether it

has affected other localities, I am not as yet able to learn. Why we should be thus afflicted is at present mysterious. While in the coast counties foul brood is common, none has ever been seen in Kern Co. We are a dry county, and depend entirely upon irrigation. The average rainfall is about 4 inches per annum. The honey crop will not be over 50 per cent of the average yield this season.

ALFALFA.

In your comments on friend Burr's letter you ask for information in regard to alfalfa. My opinion is, that, as a honey-plant in the States, it would have little value, for the reason that it appears to secrete honey only under the most favorable conditions of dry heat, and only in the middle of the day; that is, no doubt, the reason why so many doubt its value as a honey plant. With us it is the foundation and superstructure of the honey yield. We have several plants and willows which build up the bees in spring, but alfalfa is the backbone of the crop.

W. A. WEBSTER.

Bakersfield, Cal., July 25, 1889.

CARNIOLANS' EXCESSIVE SWARMERS.

Since writing our article on Carniolans, we have noticed the following in regard to them, which we take from the *British Bee Journal*, page 309:

There were some remarks lately about these bees, and I must corroborate what is mentioned; and so far as I am concerned they are nothing less than a nuisance, owing to the way they swarm. I got a nucleus last year, from a good source, a well-known party in the B. B. J., and I now wish I had let them alone. Let me give you the result. First swarm came off about a month ago. I then changed stock to a new stand, and put swarm on the old one. Second swarm came out of the old stock about a fortnight after, and up to the present the first swarm has thrown three swarms, good-sized ones too, and I can not get them to work on the sections, though I had them on all the swarming time. My hives are all standards. What is to be done with them? No doubt they are good breeders, but what good is that if it is honey you want and not bees? Up to the present I find no bees working as well in the sections as they ought and have done other years. I wish others would give their experience of the Carniolans.—H. J.

TOP-BARS, ABOVE WHICH NO BURR-COMBS WILL BE BUILT.

In answer to the inquiry concerning the modification of the top-bar of the frame to prevent burr-comb, I will say that it can be done. In 1888 I made a number of frames having top-bars $\frac{3}{4}$ inches square, and spaced them $\frac{3}{4}$ inches apart in the hive. There has been no burr-comb built on them thus far (two years), though other frames immediately alongside of them had them. I have tried them with honey-board and without.

TO GET THE TOP ROW OF CELLS IN SECTIONS CAPPED.

C. F. McColm can get the top row of cells capped over by tiering up and not leaving a bee-space between the sections, and then crowding the bees; but they will likely build them against the separators, so that his sections will drip badly. Such has been my experience.

TOBACCO PLEDGE

I quit using tobacco about a year ago, after reading GLEANINGS. If I am entitled to a smoker, send it along. I will pay for it if I begin again.

Lewisburg, Pa., Aug. 6, 1889. W. C. MAUSER.

May God bless you, friend M., in holding on to your tobacco pledge. No honey report gives me such a thrill of pleasure as does the

news that another friend has given up tobacco, washed his hands (and his mouth), and taken a step a little higher up among clean, pure people, even though it has cost something to say, "Get thee behind me, Satan."

RECIPE FOR RAISING SPIDER-PLANTS.

Feed the seed to your poultry. Clean out the fowl-house and sow the contents on the borders, and you will probably have an unlimited supply of strong plants. I have never sown a seed except the first packet I got from you. My fowls are fond of the seed, and help themselves from the plants. I could supply hundreds of plants any time all the year round. It grows here equally well, both in summer and winter time. I have always some plants in bloom. The bees are particularly fond of playing about it; but so far as I can make out, they do not get a large quantity of honey from it. This has been an exceedingly poor season for honey all over Australia.

IGNOTUM TOMATO.

I duly received the packet of Ignotum tomato seed from you. I planted them and got a beautiful row of plants, just ready for transplanting, when a most wretched goose got into the garden and nipped off every solitary head of the Ignotum close to the ground, although there were hundreds of the commoner sorts she might have feasted on. Will you oblige me with another packet of seed, of which I certainly will take greater care?

ÆNEAS WALKER.

Redland Bay, Queensland, Aus., May 13, 1889.

Well done, friend W. I am provoked almost every season by failing to get spider-plants in our greenhouses or hot-beds; but a little later on, when the weather is warm, they come up with astonishing rapidity among the weeds in different parts of our grounds, where they were cultivated perhaps years before; and of late we have sort o' given up, and depended for what we raise for our honey-garden, on the chance of picking them up. The consequence is, we do not get any bloom before August. It seems a little singular how many mishaps like the one you mention occur with the Ignotum tomato-plants. We always keep seed on hand to replace that destroyed by such mishaps.

TOP BARS $\frac{3}{4}$ IN. SQUARE, AND NO BURR-COMBS.

In corroboration of the experience of A. L. Kil-dow, given on page 632 of GLEANINGS, I wish to say that I am never troubled with burr-combs between brood-frames and sections. The top-bar of my brood-frames is $\frac{3}{4}$ of an inch wide by $\frac{3}{4}$ thick, and there are ten of them in a hive 13 inches wide. The sections are raised $\frac{1}{8}$ of an inch from the top-bar, with no honey-board between, and I have never yet found any brood in the sections. I can see no use in compelling bees to squeeze through a perforated honey-board in order to reach the sections.

¹ Pontiac, Mich., Aug. 10, 1889. F. N. HILTON.

The fact you give is valuable—the more so as it confirms the former statements of others. Who else can give corroborating testimony?

AN EVER-BEARING STRAWBERRY.

In our advertising pages will be seen an advertisement headed as above, coming

from one of our friends in Oregon. At the very low price they are offered, you can well afford to try a few and see if they will bear the year round in your localities. I believe there has never been an ever bearing strawberry that obtained much favor; but even if it does not bear very many berries, many of our strawberry amateurs may like to test it, and possibly keep a few. Here is what our friend says about it:

Our strawberry patch of about one acre is now bearing fine large berries, and we have now on our peddling wagon, which goes to the Portland market in the morning, over one hundred pounds of strawberries, which retail at two bits a pound. They bear from frost to frost. For our responsibility, see our record.

SETH WINQUIST.

Mount Tabor, Oregon, Aug. 14, 1889.

We also give below a clipping from the Portland *Vindicator*, of August 8:

FINE STRAWBERRIES.

Seth Winquist, of Mount Tabor, called at *The Vindicator* office Saturday morning and left a sample box of delicious strawberries just picked from his garden. He brought in over 100 boxes for the market, and finds ready sale at twenty-five cents per box. It seems incredible that strawberries should be raised and sold in the market at this season of the year; but it is nevertheless true, and they are of a fine quality too. Mr. Winquist informs us that his is a continuous-bearing variety of plant, and has been bearing berries from early in the spring, and will continue until late in the fall. During this unusually dry season the plants in Mr. Winquist's garden do not yield largely, but from a patch of an acre he informs us he gathers some 400 boxes per week. These he has been able to dispose of at twenty-five cents a box—a gross revenue of \$100 per week for one acre of land. Who said there was nothing in raising strawberries in Oregon?

WHITE CLOVER VS. THE BUSH HONEY OF AUSTRALIA.

We extract the following from the Australasian *Bee Journal* of July 1, page 5:

White-clover honey is undoubtedly the best, both for consumption and as a marketable article. In fact, the difference between clover and bush honey is as great as could possibly be imagined. That from clover is of a delicate, smooth, and enticing flavor, which does not pall on the palate, whilst the color is a rich amber, and the granules very fine. On the other hand, most bush honeys have an extremely strong, coarse flavor, leaving a disagreeable after-taste in the palate. There are, however, one or two bush honeys that are not so objectionable, but still even these are a long way inferior to white-clover honey. The greatest difference also exists with regard to color, that of the latter being very superior. The granules of bush honey are usually very coarse, and like the granules of coarse sugar. Perhaps the point most concerning bee keepers is, that clover honey will always meet with a more ready sale and command a higher price in the market.

POISONOUS INSECTS AND SNAKES OF FLORIDA; INFORMATION WANTED.

In the issue of Aug. 1st, p. 629, our good friend Prof. Cook thanks GLEANINGS for having obtained through it a fine specimen of a copperhead snake, and would like to have other Southern snakes. I plead for this little space in GLEANINGS to recall this notice, and remind our Florida friends who read GLEANINGS, that, when they are sending Prof. Cook snakes, to be sure to send him a black "grampus," the sting of which is said to be very fatal, so we can have it described in GLEANINGS; or if Prof. Cook is acquainted with this insect, he will confer a great favor on us who anticipate going to Florida, if he will give us a description of it. It will be very

interesting to have him tell us about the Southern snakes, and I hope our Southern friends will avail themselves of this opportunity. I saw some snakes in Florida that would break short off when struck with a stick, the piece with the head going on as if not hurt. I was told they would grow out again if not broken too near the middle. I have seen the ground-rattler and the coach-whip. The former is said to be very poisonous; the latter is a very saucy fellow.

JAMES W. WALKER.

Green Spring, West Va., Aug. 18, 1889.

We second your request, friend W. By all means let us know all about these noxious insects and reptiles. I should especially like to have Prof. Cook tell us about the snake that breaks in two when struck with a stick. Does it break in two without the shedding of blood?

CELLAR WINTERING COMPARED WITH OUTDOOR WINTERING; ARE THE LATTER MORE HARDY?

I want to ask a question. Are bees that are wintered in a cellar, or are buried, or kept in any other similar way, more liable to spring dwindling than bees that are wintered in chaff hives? I have kept from 10 to 75 colonies of bees for 15 years. Part of my bees I have wintered by burying them, and a few colonies I keep in chaff hives. I find no difficulty in wintering my bees by burying them. They winter equally well in chaff hives, and even better. The bees that I bury seem to be more liable to dwindle after I remove them from the ground in the spring than the bees in chaff hives. But it should be borne in mind that my chaff hives are not like the ordinary chaff hives in use. I have two styles. The style I like best has the brood-chamber 10 inches square in breadth, and 24 inches in depth, containing 2000 cubic inches inside of the frames; 7 tall narrow frames to a hive only. With this chaff hive I have wintered my bees, not finding on the bottom-board during the whole winter and spring over one-eighth or one-fourth of a gill of dead bees. This is not as many as would apparently naturally die from old age. I found on the ground, outside of the hive, scarcely more than 25, 50, or so dead bees, and no spring dwindling.

WILLISTON CONNOR.

Rensselaerville, Albany Co., N. Y., Aug. 12, 1889.

We think, as a general thing bees are less liable to spring dwindle in chaff hives on summer stands. Beginners, as a rule, will have better success with the outdoor plan; but experts, while they will have no better results, will winter with less stores per colony in the cellar.

In addition to what Ernest says, I wish to add that one great reason why I abandoned wintering in the cellar or wintering in a house with sawdust walls, was because of what you mention. I could winter the bees very well either way; but the trouble was to get them through April and May. In the chaff hives we have no such trouble to speak of, while indoor wintering always troubled us more or less.

FALSEHOODS IN CYCLOPEDIAS: A PLEA FOR THE BRITANNICA.

I have noticed the frequent justly indignant protests in GLEANINGS in regard to the foolish story about the manufacture of artificial comb and honey with paraffine and glucose. But it is not a just charge against the *Encyclopædia Britannica* that the

article referred to is there published. The article on bees in that work was written by John Hunter, secretary of the British Bee-Keepers' Association, and, of course, is free from this sort of foolishness. I have carefully searched through the volumes, and find no reference in any place to this false allegation; the only mention of glucose in this connection being that it is sometimes used as an adulterant of honey, which statement is, unfortunately, beyond doubt, true in some instances. The fact that a cheap American reprint of the genuine encyclopedia contains the libel and slander is an instance of the common error of purchasing or reading cheap books in which cheap popular science, so called, is retailed by cheap writers. Like a mud spot on a bright surface, this slander will remain in perpetuity, no doubt, and as a proof that the adage, "truth will prevail," does not apply to present circumstances, under which truth has no chance against the persistence of a lie once gaining wide circulation. Possibly if the lie were left unnoticed it might remain in oblivion.

I have frequently referred to this matter in the *New York Times* as a foolish libel on bee-keepers, a class of men who are specially free from tricks in trade and such like meanness.

H. STEWART.

Highlands, N. C., Aug. 14, 1889.

We are exceedingly glad to hear that the genuine original *Britannica* does not contain this slanderous falsehood. The whole thing is a sad reflection on the American people in two ways, and every new newspaper statement in regard to the matter is a disgrace to us as a people.

WHEN TO EXTRACT; HONEY RIPENED BY BEES SUPERIOR.

I arranged four hives for extracted honey. During basswood bloom all of them filled the upper stories, but only one was completely capped over, the others not being more than half. Now, were the four ripe enough to be extracted, or only the one that was fully capped over? The honey was all gathered in the same ten days. From reading your works I should say no; but common sense might suggest yes.

ALFRED J. LAMB.

Jefferson, Ia., Aug. 11, 1889.

It is generally better to wait till most of the honey is capped over before extracting. Some bee-keepers extract before and ripen the honey in large open tanks. We never yet tasted artificially ripened honey that we thought was fully equal to that ripened by the bees, although some of the former is very nice. If you wish to get nice thick honey of extra quality, leave the combs of sealed honey on the hives through the summer, and then extract.

CLIPPED QUEENS A FAILURE.

I should like to ask if you ever had any trouble with your clipped queens in failing to issue with the swarm, or getting them killed by the bees. I have lost 30 out of 40 queens this spring. Two-thirds of my queens failed to issue with the swarm. I had three colonies swarm twice in succession without their queen, and so they became demoralized. I have almost concluded to stop clipping my queens.

Brackettville, Tex.

R. HEYMAN.

Years ago we had some trouble by losing queens, but we had no such proportion of loss as you have had. See Question-Box department for this issue.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

HONEY-DEW, AGAIN.

Bees are storing honey very fast from honey-dew. It is so plentiful that it is dripping from the tops of the tall timber, down on leaves of the underbrush.
Garfield, Ark., July 27, 1889. G. W. REDDICK.

THE CHAPMAN HONEY-PLANT.

My Chapman honey-plant has just ceased to bloom. It bloomed about one month, and the bees were busy on it from before sunrise till after sunset during the whole time it lasted. I have seen ten bees at a time on a single pod.

T. K. MASSIE.

Concord Church, W. Va., Aug. 17, 1889.

ICE-MAKING AND BEE-KEEPING COMBINED.

I am rushed with the ice-business just now. We are turning out, every 24 hours, from 66,000 to 69,000 pounds of bright clear ice. I have a poor chance to attend to bees and ice, both booming in hot weather.

THOS. D. LEWIS.

Knoxville, Tenn., Aug. 12, 1889.

SHALL WE UNDERTAKE TO REGULATE THE SUPPLY OF POLLEN IN THE HIVES?

There is a question in regard to pollen which I should like to ask. Should colonies be allowed to regulate their own supplies of pollen, or is there any rule to be governed by? EDWARD HOLLING.

Henrietta, Mich., Aug. 6, 1889.

[In our locality we never have an excess of pollen, therefore nothing need be done in regard to it. In fact, in the early spring we often feed large quantities of rye flour as a substitute for pollen.]

BEE-STINGS NO RELIEF FOR RHEUMATISM.

I have seen so many letters in GLEANINGS about bee-stings being a remedy for rheumatism, I thought I would add my mite. I have suffered with that disease for three years, and have handled bees every season, and this summer I was badly stung while hiving a swarm, and I am sure I never got any relief from the stings.

MRS. JOHN BURR.

Braceville, Ill., July 24, 1889.

[I am exceedingly glad to have you give us this adverse report. To get at the truth of any matter, we want reports of failures as well as of success.]

HONEY STATISTICS FOR MICHIGAN.

I send you the following figures, taken from the "Farm Statistics of Michigan," collected by the supervisors, and just issued: There were, in the spring of 1888, 4080 apiaries, containing 44,326 colonies; 52,199 colonies in the year 1887 produced 579,820 lbs. of comb honey, and 19,814 colonies produced 150,019 lbs. of extracted honey, and 8567 lbs. of wax were produced the same year; 21,847 colonies died in the winter of 1887.

F. N. HILTON.

Pontiac, Mich., Aug. 17, 1889.

SILVERHULL VERSUS THE JAPANESE BUCKWHEAT FOR HONEY.

I have just come in from the buckwheat patch. The bees are on the silverhull in goodly numbers, while the Japanese is almost ready for the sickle, and nary a bee to be found in all the patch. My bees have not done much toward swarming—only

10 swarms from all my stands, and not much honey. It has been wet and too cool for bees to work.

Atwood, Ill., Aug. 13, 1889.

J. W. C. GRAY.

BEEES ATTACKING SOUND FRUIT.

I desire some information. On my farm, all the early peach-trees had fruit which decayed on the branches. The bees then attacked this fruit and afterward went for the sound fruit that matured without decaying. I can't account for it. My bees are doing nicely, and my apiary is ten miles east of this city.

A. O. BRUMMIL.

Washington, D. C., July 18, 1889.

[You will get exactly the information you wish on page 682, Sept. 1, 1888, issue. I then made some careful experiments with bees on early peaches, and, I think, proved conclusively that the bees do not, and, in fact, apparently can not, cut into a peach until it begins to decay.]

CATNIP; WILL IT PAY TO PLANT IT?

White clover, with us, comes about the 25th of May, and lasts until the first of July; and then we have but little honey until buckwheat, which comes about the middle of August. Would it not pay to plant catnip on our farm, for it lasts about three weeks in July?

SHERMAN BORDEN.

Burlington, N. J., July 30, 1889.

[We think we can pretty safely say that it will not pay to cultivate catnip or any other plant for honey alone. Many experiments have been tried, from an acre up to several acres; but no experimenter has been sufficiently well satisfied with the result to keep it up. Buckwheat, alsike and peavine clover, are all right; also rape in some localities, as the seed is saved for oil.]

REPORTS ENCOURAGING.

A CONTINUOUS HONEY-FLOW.

The bees have not let up since the apple-trees bloomed in April, and there is a prospect for good picking for the next two months.

JOHN LONG.

Vesta, Ind., Aug. 15, 1889.

BEST SEASON FOR BEES EVER EXPERIENCED.

We are having the finest season for the bees I ever experienced. Basswood and clover were both splendid, and now the bees are booming on buckwheat and fall flowers.

J. C. HAND.

Abbot, Ia., Aug. 12, 1889.

LARGE HIVES; 51 BARRELS, OF 550 LBS., FROM 245 COLONIES.

My crop of white-clover extracted honey is very large, and of the very finest quality. I gathered 51 barrels, of 550 lbs. each, from 245 colonies, spring count. So much for large hives and a favorable season.

EMIL J. BAXTER.

Nauvoo, Ill., Aug. 8, 1889.

24,127 LBS. OF HONEY FROM 325 COLONIES, SPRING COUNT, AND INCREASED TO 402.

I received the extractor to-day. I did not get to try it this year, as I finished extracting to-day. I have taken out 24,127 lbs. of honey, and 720 of wax. How is that for 325 colonies, spring count? I increased to 402, with only \$38.00 paid for help.

Rush Point, La., Aug. 10, 1889. WM. J. DAWSON.

250 LBS. OF HONEY IN 15 DAYS, FROM ONE COLONY, AND 400 COLONIES IN ONE MILE SQUARE.

I had one hive of bees this year that gained 250 lbs. in 15 days from July 11th to 25th. I extracted in this time 234 lbs.; average daily, 16²/₃ lbs. I have

112 colonies, and there are over 300 more within one mile of my bees, making over 400 in an area of one mile square. All are doing well. F. B. JONES.

Howard, Minn., Aug. 6, 1889.

21,000 LBS. FROM 160, SPRING COUNT.

Our bees did quite well this season, considering the help I had, and condition of the bees in the spring. We had to buy sugar, and feed, so they were not strong. We had 160 colonies in the spring, and now have 250 colonies. We have taken off 21,000 lbs. of honey—1500 lbs. of comb honey, and the rest extracted. Our honey is very nice, all as good as you saw when you were here.

MRS. W. J. PICKARD.

Richland Center, Wis., Aug. 10, 1889.

\$15 PER COLONY, AND HONEY ALL SOLD AT 20 CTS. PER LB.; "HOOSIERDOM" EXPLAINED.

This has been a great honey year: but as I have not given the bees the care they ought to have had, much has been lost. The home apiary has yielded about \$15.00 per colony, spring count, while those that I left at my old home have done a little better. My honey is nearly all sold at 20 cents per lb. Hugh Vankirk will have about 5000 or 6000 lbs., I understand. Will you please ask Ernest what he meant in Aug. 1 GLEANINGS, p. 643, by "Hoosierdom"? It made me feel bad when I read it, but perhaps he intended us to extract some other meaning than the one given the term here.

L. W. VANKIRK.

Washington, Pa., Aug. 17, 1889.

You have given us a grand report, although Indiana, by the Statistics, reports in general a poor season. In regard to that term "Hoosierdom," we meant no unpleasant reflections upon any good people who live by the sweat of their brow in a literal sense. If you will excuse another coinage, we meant *farmerdom*, or the region occupied by the tillers of the soil, as distinct from those little spots occupied by "town chaps." See?

REPORTS DISCOURAGING.

TWO THIRDS OF THE USUAL CROP.

We have about two thirds of our usual crop of light honey, which is very nice. The outlook for fall or dark honey is poor. It still continues very rainy, and is getting somewhat colder.

Jefferson, N. Y., Aug. 9, 1889. LESLIE STEWART.

NOT A POUND OF SURPLUS.

From 100 colonies in good condition, not a pound of surplus honey was secured. Bees got plenty to live on, and we yet live in hopes of getting some for ourselves when the tie-vines bloom. So far as I can learn, the honey crop is a failure in all the surrounding counties. JNO. H. MULLIN.

Oakland, Tex., Aug. 10, 1889.

THE POOREST SEASON IN FIFTEEN YEARS.

We had excessive swarming from June 12 to Aug. 9. Bees have brought in honey enough to keep up brood-rearing. I have 80 colonies, and not a third of them have honey enough for winter. We shall have to feed unless we have an extraordinary fall. I do not look for that. We had a frost on the night of the 10th of this month that killed all buckwheat on low lands. L. REED.

Orono, Mich., Aug. 13, 1889.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 141.—*a. Do you regard the virgin-queen traffic as a benefit to bee-keepers, particularly to novices? b. If it is a benefit, what are the benefits? c. Have you found any practical plan to introduce virgin queens four or five days old, so that they can be introduced as quickly and as easily as fertilized queens? If so, please give it in detail.*

a, b. No.

S. I. FREEBORN.

I do not. I condemn it in toto.

MRS. L. HARRISON.

a. As a rule, it is not a benefit; c. No.

GEO. GRIMM.

a. No. c. Introduce them on sheets of hatching brood.

P. H. ELWOOD.

a. No; c. I think there is too much uncertainty about it.

H. R. BOARDMAN.

a. No; c. None that will work so as to commend the practice.

DADANT & SON.

a. I have my doubts; b. I give it up; c. No. We are experimenting now it that very line.

A. J. COOK.

I have not been fortunate enough with the introduction of virgin queens to say any thing in favor of the traffic in the article.

C. F. MUTH.

a. I think it may be. b. I think they may be furnished at lower prices than laying queens. c. My experience in that line is very limited.

C. C. MILLER.

a. No. b. No. I have practiced Alley's plan, with a loss of one out of every five. I have practiced no other plan. Any plan is very uncertain.

RAMBLER.

a. No, unless the novice will first learn to introduce them successfully. c. Yes, by first making the colony hopelessly queenless, when they may be introduced directly without caging.

A. E. MANUM.

I don't think the virgin-queen business will be of any benefit to any one except the queen-breeder; c. No. In making our swarms by division, we sometimes have used virgin queens just out of the cells, with good results.

E. FRANCE.

a. No, neither to novices nor to experts. c. Letting them loose at the entrance is as good as any other way. Some seasons I have no difficulty at all, but at other seasons I can hardly have one out of four accepted.

PAUL L. VIALLOIN.

My answer to the first must be a mere matter of opinion. My opinion is unfavorable to it. I let virgin queens run in the door and take their chances—with perhaps the help of a little smoke. I have never tried aged ones.

E. E. HASTY.

a. No, not at present. Whether or not it can be made practical I will not offer an opinion, but leave it to those who know more about it than I do. b. I do not know. c. No, not as quickly and easily as fertilized queens. Not with the certainty.

JAMES HEDDON.

I do not. With novices especially, I think it is likely to prove unsatisfactory. Any one ought to be able to get at least one good queen, and after

that any one with a little experience in bee-keeping ought to produce virgin queens about as well as any one else; and considering risk of loss, etc., much cheaper. Those who can not are not likely to succeed with virgin queens several days old, purchased from a distance. I have always introduced virgin queens when less than two days old.

J. A. GREEN.

a, b. I have had no experience in that line. c. No; the best way I found was in the Betsinger cage, the same as though they were fertile. I have had a good deal of experience in introducing virgin queens of different ages, but abandoned all except the introduction of very young ones, after noticing the fact that they never took their wedding-flight until the same time had elapsed *after their introduction*, whether they were one hour or five days old at time of introduction. I have often wondered whether any others have had this same experience or not; but I have noticed no mention of it by our writers.

O. O. POPPLETON.

a. If virgins could be safely introduced it would be a great benefit; but with my experience in introducing them, I would look on the trade in them as an unmitigated nuisance. The greatest annoyance I ever had was thirteen years since, in adopting your (?) lamp-nursery, and introducing virgin queens. I could hatch them by the hundred; but nine out of ten were lost in introducing. b. I have not succeeded in any plan of safely introducing virgins.

P. S.—I do not insist that Providence warned us against the use of such a device as above named, but the great lamp used in *that nursery* afterward burst, and set fire to the house of J. F. McIntyre, my son-in-law, and narrowly escaped burning it with the family.

R. WILKIN.

a. How is a novice ever to become a bee-keeper, except as he goes to work as a bee-keeper should? It is in this way that he becomes a practical bee-keeper. So I answer the question, *yes*. Every virgin queen a person handles makes him just so much the wiser along this line of our pursuit; and until a person can successfully handle virgin queens, he does not arrive at full "manhood" in our pursuit. b. Through a direct crossing of the best stock which you have, with the best stock the best apiarist in the world has succeeded in producing. A direct cross of the best specimens of a given race always gives vigor and strength not obtained in any other way. c. No, not as easily as a fertile queen can be introduced; but by the plans given in my book, I succeed nearly every time; but these plans are too long for this department.

G. M. DOOLITTLE.

a, b. I don't *know* any thing about it; but it seems to me that "novices" had better purchase only fertilized queens, except as an experiment. c. I have introduced virgin queens several days old, but not as *quickly* as fertilized ones. My method was to fix a stick in such shape that one or both ends would be of the size and shape of the inside of a fair-sized queen-cell. Wet the ends and dip them in melted beeswax two or three times, just as is done to sheet wax for foundation. Place in cool water a moment, and the wax can be readily removed from the stick. Make as many as may be needed for the season. Before using, prick three or four holes, with a good-sized pin, through the closed end of this wax cell, just about where the

queen would naturally gnaw out of a natural cell. Put the queen in head first, and carefully squeeze the open end together, and fasten to the top-bar of a frame that is in the center of the cluster of bees in the brood-nest. The holes should be large enough so the queen can get her tongue through, to be fed by the bees. This is not original with me. I read it somewhere years ago.

DR. A. B. MASON.

Our friends may perhaps remember that I was one of the first to recommend introducing virgin queens—that is, when first hatched by means of the lamp nursery; but I never succeeded in any satisfactory way, unless the queens were introduced when only a few hours old. As an illustration: One evening during swarming time a young bee-keeper drove up to our yard with some queen-cages in long strips; in fact, they looked a good deal like ten-foot poles, only they were about half as long. Every cage contained a nice-looking queen; but I thought at the time they looked rather white and fresh. He said he had bought an A B C book; but as he lived only a few miles away, he raised the queens expressly for us. We purchased the lot, and commenced introducing. In two or three weeks we had introduced most of the lot; and some later a few were laying. We were, however, satisfied that he had brought us virgin queens. We hunted him up, and he admitted it. He said he hadn't got the hang of the thing, and he supposed that getting the queens hatched was all there was to it. Now, I am sure that neither Ernest nor myself would think of accepting such a lot of queens again as a *gift*. I do not mean that there was any thing the matter with the queens. They were strong, lively, and active; but they had not been fertilized.

QUESTION 142.—*By what method do you introduce fertile queens? Explain the plan in detail, if not already generally known.*

See 141.

PAUL L. VIALLO.

The plans as given in my book. A. J. COOK.

Cage them a couple of days before letting them loose.

P. H. ELWOOD.

My method is generally known and practiced by others, which is, by the use of a surface-cage.

A. E. MANUM.

By caging the queen on the combs with a wire-cloth cap that crowds into the comb after removing the old queen.

H. R. BOARDMAN.

By various methods, depending upon the time and the condition of the swarm. A fertile queen is almost always safe when running over the combs.

MRS. L. HARRISON.

I have nothing new to offer. I have practiced most of the methods given in the books. Most of them will prove successful during the swarming season, with a good flow of honey.

S. I. FREEBORN.

Generally I let her go at once among the bees on a comb, lifted from the hive where I know they have been without a queen a few hours or days. If they treat her well I set her with the bees back in the hive; if the bees seem to doubt her right among them, I put her in a Peet or other cage, arranged so she will get out within a day or two. More valu-

able queens I introduce to a few young bees only on hatching brood, and build up with hatching brood.

R. WILKIN.

I use more than half a dozen methods—first one and then another, according to the circumstances. To explain all these methods in detail would be tedious; besides, they are all explained in back numbers of journals and bee-books.

JAMES HEDDON.

a My plan is the good old way that never fails. Take out all escort bees, and cage the queen three days. I have tried various other plans recommended, but have had indifferent success. I wish to try, this season, Cheshire's plan of running them in the evening.

RAMBLER.

When surplus queens are raised in nuclei in the yard, I frequently use the "Simmins direct-introduction" method. Ordinarily I decidedly prefer the use of the old-fashioned Betsinger cage. Both of these ways have been frequently described in all the bee periodicals.

O. O. POPPLETON.

I put the queen in a small wire cage and suspend it between two combs, near the brood, but so that she can reach honey through the meshes. I leave her caged from 24 hours, or some less, to 3 or 4 days, according to circumstances. One can tell very readily from the action of the bees whether it is safe to release her, and that is my guide.

GEO. GRIMM.

By several plans, all of which have appeared in GLEANINGS. For a very choice queen I always use the "caged-bees" plan, as I have given in back numbers of this journal, and I have never known a failure, and I have had but one report of such a failure from the many who have used the plan. I consider it *absolutely safe* in the hands of the novice or the expert.

G. M. DOOLITTLE.

Kill the old queen just before introducing the new one; then cage the new one in the hive for 48 hours, and release her by putting a piece of comb honey in place of the stopper of the cage. With an already queenless colony, we do not release the queen till we are sure there are no queen-cells, and that there have not been any for several days past; i. e., till we are sure they are otherwise hopelessly queenless.

DADANT & SON.

I generally use the Peet shipping and introducing cage. Sometimes I make a cage out of a piece of wire cloth 3 or 4 inches square. Cut a piece about half an inch square from each corner, and bend the four edges to a right angle with the rest of it, and as deep as the corners have been cut out. Shake the bees from a comb and place the queen and a few of her bees on the comb when there is honey, and set this cage over them and press the edges into the comb. This is not a new way, but I've never failed with it, neither have I with the Peet cage.

A. B. MASON.

My methods are mostly those recommended in GLEANINGS and A B C, and thus so familiar as not to require detail. For introducing a valuable queen, in times when bees are cross and no honey coming in, cage a whole comb of hatching brood; put the queen on it, and hang it in the center of the colony. Another and perhaps better way is to shake the bees all into a box, Doolittle-nucleus style, and give them the queen after they have been *worrying* for an hour or two. On giving them combs, give different combs, as far as brood will al-

low, and a different hive—but, of course, on the old location. Make them feel like strangers in a strange land, and they are not likely to attempt the overthrow of the dynasty.

E. E. HASTY.

I make an introducing-cage by taking a piece of wire cloth about five inches square, and bending the edges up at a distance of about seven meshes from the edge. Take a piece of tin of the same size; bend up two adjoining edges, and cut a $\frac{3}{8}$ -inch square out of the opposite corner. Lay the cage on the tin slide, and put in the queen, and, if necessary, a few young bees. Select a level spot on a brood-comb where there is some honey, and, if possible, hatching brood. Lay the cage on the comb, tin down; withdraw the tin slide, and press the cage into the comb just enough to hold it firmly. Leave the queen caged 48 hours, then remove the cage, unless the bees seem hostile.

J. A. GREEN.

We introduced several old fertile queens last year by putting them into the Peet cage and fastening the cage to the comb, with the tin slide drawn out. I had but one failure in 20; but I lost a \$4.00 Carniolan queen last week. I had a colony with queens in cells almost ready to hatch. She arrived at 6 P. M. We looked over the combs, and supposed we had taken out all of the queen-cells. We put the Carniolan in a Peet cage, and did not take the tin slide out. We put the cage in the hive, left it 36 hours, and then removed the tin slide and fastened the cage to a comb. About 4 days after, I looked the combs over. The queen was out of the cage. I found one queen-cell hatched, and my Carniolan queen dead in front of the hive—just because there was *one cell left*.

E. FRANCE.

The best way to introduce queens, and the safest of all I have tried or seen described, is the cage system. Cage the queen of the hive for a day or a night, or for three or four hours only, so that the bees are aware of their queen being in the cage, which, of course, is suspended (or sticking) between two brood-combs. Next, take out the cage, put away with the old queen, put the new queen in her place, close the cage with a piece of comb honey instead of the cork, and place it between the combs again in the old spot. The cage, having the scent of their old queen, and the bees knowing her to be in that cage, are cleverly fooled. They liberate the queen and receive her every time. Exceptions to the contrary are very rare. No bees should be in the cage with the queen.

C. F. MUTH.

Suppose I want to introduce a queen from a nucleus to a full colony. I take from the nucleus a frame of brood on which is the queen, with its adhering bees, and put it, without any preparation, in the full colony. The plan is so little trouble that I can afford an occasional loss by it. If the colony is queenless, and has started queen-cells, I often lift out a frame and put the queen on it upon the brood, right among the bees, without any formality; but the first plan is safer. To introduce an imported queen I put frames of just hatching brood in a hive with the queen and no workers, except those attending the queen; close the entrance and put this hive over a strong colony with a double layer of wire cloth between, so there can be no communication between the bees of the two hives; but the heat can rise from below. In four or five days, open the entrance so the young bees can fly.

C. C. MILLER.

Just at present, Ernest and myself do not quite agree about introducing queens. After the years of experience we have had in sending queens out, I do not feel satisfied that any thing else will succeed any better, even if as well, as the Peet cage, as we now have it. New inventions will come up, as they have been coming up, year after year; but sooner or later the decision is, they are no better. Then why should we make a change, and multiply, and confuse not only the rising generation but many of the veterans also?

MYSELF AND MY NEIGHBORS.

Be not overcome of evil, but overcome evil with good.—ROM. 12:21.

THIS whole matter of "doing good" to those that *hate* you has been so often repeated, and so much talked about, that these beautiful texts fall upon our ears almost without notice; and yet almost every one of us, when we get into trouble with our neighbors, forgets to make the application. Last evening our minister made the remark, that, when Melancthon was converted, he felt sure he could make the matter so plain that the world would *have* to see it; and he had faith enough to believe that the world would be converted. To his great sorrow, however, he soon found that "old Adam" was more than a match for "young Melancthon." I remember very distinctly when I had something of the same feeling. Our older readers will perhaps remember, too, the energy and vehemence with which I started out to explain and talk about the Bible truths here in these pages. For a good while, the principal point on which I exhorted was *our homes*. Further along it seemed to me as if God called me to consider next *our neighbors*; and here we are, dear friends, this bright Monday morning, once more considering this matter of our neighbors. Some of you may say, "Why, our neighbors are all right as they are. Our relations to them are all they need to be. What is the use of having any more talk on this hackneyed subject of 'our neighbors'?"

Well, sometimes I am tempted to think there is *not* much use. Some time after my conversion, in thinking the matter over I felt sure that, if I could have a good long talk with a brother of mine, who was then away, I could surely present the matter to him in such a way that he would at once embrace Christianity. He and I had discussed different matters from childhood, and a good many times I had been converted to his way of thinking, while at other times he had been brought over to my way. It seemed as plain as the multiplication table to me, that, if I could have his undivided attention, say for half an hour, he must assent to the truths and the claims of Bible teaching. He came home, and we took a walk together out in the country. Some way it is always natural for me to talk best when I am out in the open air riding or walking. Well, he gave me his attention, and I went over the whole ground. He as-

sented to many of my propositions, as I knew he must assent; but no such direct change took place in him as I hoped and expected there would. He was not ready or willing to let the world, and what it had to offer, go, and accept in its stead Jesus Christ. I have had the same experience so many times since, that I have got over being disappointed or discouraged. I learned long ago to sow the seed after my own fashion, as best I could, and leave the result with Him who rules over all; and as a general thing I feel happy when I have done my work, whether immediate results follow or not. Now to business.

In my recent travels I have had so many pleasant experiences when stopped in some unexpected place that I have rather learned to enjoy it. Whenever I am told that the time has been changed, or miss connection, my first thought is, "Well, what has the Lord for me to do here?" and then I set about finding out. At one place in Wisconsin, in reply to my oft-repeated inquiry, the station agent said, "Oh, yes! there are quite a lot of bee-men here; if you walk down the track three-fourths of a mile you will see Mr. —, who has a great snarl of hives; and up on the hill, in another direction, is a man who has lately commenced, and he is quite enthusiastic in the business, and I have no doubt he would be glad to see you. Off over the hill is another one," and so on. But as I had only three hours to wait, and my supper was to come out of the three hours besides, I concluded that he had given me directions enough. Three-fourths of a mile down the track I saw thirty or forty hives arranged under an old-fashioned shed. They were on the north side of a very pretty little garden. Every thing was neat and tidy, but they evidently were not quite up to the times in every thing. I talked a little while with the old gentleman who owned the bees, but he did not seem to know much about the bee-journals nor about their editors. He said his son was out harvesting, but added that he would be home soon, and he would doubtless be very glad to see me. So I walked back to the depot; but just as I had reached there, however, a young man (the son) drove up briskly, and expressed great pleasure in meeting A. I. Root. He said he was working hard to get money enough to complete his education, and, of course, he and I were friends at once. I proposed making a brief call on one of his neighbors; but he seemed to be a little bit backward. There had been differences between them, mainly in running each other on the price of honey. I urged him, however, to go over with me, suggesting that, if they got better acquainted, they might possibly agree on some price so as not to cut each other. After a little urging he replied, "Why, of course I will go;" and we three had quite a pleasant little chat together. The last-named friend had his hives neatly painted, and set each one under a forest-tree, where a partial clearing had been made in the edge of the town. It was a very pretty place, and the hives were very neatly cared for; although I found in a few moments that some of

them were crammed full of honey, and the bees were hanging idly on the outside, it being in the height of basswood bloom. These were both fine, intelligent young men. They had it in their power to assist each other greatly, and yet they had been on bad terms, just on account of the value of a few cents. At another place I met the same state of affairs. One man said to me :

"Mr. Root, we used to have a bee-convention here, and I loaned books to my neighbors, looked over their hives, and showed them how. I let them take a hive for a model, and things of that sort. But how do you think it turned out?"

I replied that I hoped it turned out pleasant and profitable all round.

"Not a bit of it. Just as soon as they had got a pound of honey to sell, they rushed into town with it, found out what I had been getting right along for mine, and then offered to sell it to the groceryman for two cents less, if he would take their honey instead of mine. I am clear disgusted with this work."

The above sums up one of the most grievous troubles among neighbors, especially where both keep bees. They get along very friendly and nicely until it comes to the matter of disposing of the crop. Honey can not be rushed off as many other things are, and these beginners are almost always in need of a little ready cash. Forgetting the accommodation they have had, they too often, in their sudden eagerness to turn their work into cash, do something like what has just been described. I should not wonder if quite a lot of my readers say, as their eyes take in this thought, "There, that is just my experience exactly. But I have got done with teaching people how to keep bees, just for the fun of it, and then having them undersell me, just as soon as they get a few pounds of honey."

Please do not be in haste, dear brother, to come to such a decision. I know these things are bad, but it only shows the selfishness of humanity. It is not our neighbors alone, but it is ourselves; and this same in-born sin exists in our own families and in our own hearts. The remedy is in the beautiful little text at the head of my talk to-day: "Be not overcome of evil, but overcome evil with good." What a grand thought it is! and, oh how much better than to say you will not have any thing more to do with them, as we often do! Of course, I recommend Christianity and a Christian spirit when these things are told me; but too often the reply is, "Mr. Root, the church-members do not do a bit better. The very neighbor I was telling you of belongs to the — church." Some go still further and say, "Why, even the minister did so and so."

One afternoon I was having a very pleasant chat with a particular friend of mine. He and his wife, with their children, were sitting out in the shade of the apple-trees, close by the apiary. While we were talking, a man came up and wanted just one planed board, such as friend — has stacked up ready to make hives. He is a supply-dealer, and has a small engine and buzz-saw. He keeps the regular hives in stock;

but as orders frequently come for something different, he keeps a limited quantity of nice boards right close to the saw-table, ready to be cut up as wanted, at a moment's notice. Well, this neighbor wanted just one of these boards. My friend, in a gentlemanly way, explained that he would very much rather not let them go. After he had gone, I suggested:

"Why, friend —, can't you get enough for those boards to afford you a good profit, and at the same time accommodate your neighbor? I noticed that you did not say any thing about the price, neither did he. Now, I would have said, 'Neighbor —, I do not like to spare these boards; but if you need one bad enough to pay me so and so for it, I will let you have one, and replace it soon.'" He glanced at his wife, and just then it occurred to me that perhaps the neighbor might be slow pay, or something of that sort. It was as I surmised. Instead of paying for the board, he would have wanted it charged, and that would have been the last of it. A little more questioning brought out the fact that this neighbor was their minister.

"Why, friend —, you do not mean to say that your minister does not pay his debts, do you?" He assented, and then said that the same individual owed them a milk-bill that had been standing so long he had no hope of getting it at all. At this I rose to my feet. The wife assured me that it was all so. I insisted that there must be some extenuating circumstances, or something I did not know about. Now, my bee-keeping friend is a pretty good man, even if he is not a member of any church. He replied in a manly way:

"Yes, Mr. Root, there is an extenuating circumstance. This man receives such a miserable pittance for a salary, that he can not very well be honest, even if he wanted to ever so much. His congregation is small, there are no wealthy members, and I really do not see how the poor fellow does get along as well as he does. Now, I do not mind the amount of the milk-bill, even if it is hard to furnish milk regularly, and not get any pay for it. If he or his people had asked me outright to donate the amount I would have given it willingly. But that is not the point. I do not like the way of *promising* to pay, and then not paying."

Now, friends, we are getting to the bottom of the matter, I believe. The real truth of this trouble, and a good many other troubles of this sort, is that Christ's cause is at a very low ebb in these localities. The churches are small, and even those who do attend and try to support the minister are weak in faith, and, as a consequence, weak in finance. They scrimp their minister, and he scrimps by not paying his honest debts. The consequence is, he can not *possibly* preach a real gospel sermon. His Christianity is pinched and starved out of him. Who is to blame? It is just like living in a community where boys steal melons and honey. Instead of laying the blame all on the boys, it lies on the community in general. They lack the spirit of the little text. In one of our prominent agricultural papers a few

weeks ago a well-known writer spoke of watching his berry-patch on Sunday. It took so much of his time that he could not go to church; and in spite of his efforts, the boys and even men came there and carried off his berries in tin pails. Finally he *caught* a little fellow and kicked him with his great boot. What should he do? Why, bless your heart, dear friend, I should do exactly as the Bible teaches. "Be not overcome of evil, but overcome evil with good." I do not want to boast, dear friends—far be it from me to do so; but I do want to say that our honey has never been stolen, and our melons and berries have never been stolen—that is, to amount to anything. Some of our small boys did at one time last June get into a habit of cramming their pockets with great green Jessie strawberries; but the saddest part of it to me is, as I look back, that even Uncle Amos lost his equilibrium, and scolded one boy, and made him take the great berries out of his pockets. The boy had been hoeing, and was tired and thirsty; and the berries with their pink cheeks looked so tempting to him, who could blame him? Yes, I scolded; but I afterward felt bad about it, and he felt bad too; and I talked the matter over with him pleasantly and good-naturedly. I told him that, if all my boys did that way, there would not be any berries to get ripe.

He assented, and promised not to touch another berry unless I gave them to him, but to go and buy them at 5 cts. a pint boxful, the way everybody else did; then he would not have to stick them in his pockets, and feel guilty while he was eating them. I never knew him to touch a berry afterward. He and I are real good friends. He helps me and I help him. Now about the ministers:

There are a great many ministers who read GLEANINGS. God bless the dear hard-working brothers! How I do love to get hold of their hands and talk over these matters! They know me pretty well, most of them; and even if I do touch on something that reflects on them just a little, I think I know beforehand that they say in their hearts, "Go on, brother Root; don't spare us." I say this because I do firmly believe that they are hungering and thirsting after righteousness and godliness, and that they will rejoice at any thing that helps righteousness to prevail. During my travels I urged a good friend of mine very hard indeed to go to church one Sunday evening. He said he was pretty certain that it would not do him any good; but as I was his guest, he of course gave way. Well, I was very anxious, as a matter of course, that the sermon should be spiritual and inspiring. I felt anxious for him during all that discourse, and I found out afterward that he felt anxious for *me* in the same way—that is, he wanted the minister to do well, so as to give me a good opinion of their neighborhood and people. I am sorry to be obliged to say that the sermon did not have very much heart in it. There was a great deal of Scripture quoted, but it did not have any *particular* application that I could see. The minister pounded the desk, let his voice sink

to a whisper, and then spoke in thunder-tones. It was a kind of old-fashioned preaching that some of you may have heard years ago. On the way home my friend explained that the regular pastor was absent, and that this man was called in, rather than have the audience go back without any sermon. He went on:

"Of course, I need not tell you there was no particular point in any of his remarks; and I think I will just mention that one reason why I did not find very much good in it was because that man has been owing me for three or four years for honey."

"Oh! but, friend —, he will pay it, even yet. Perhaps he has had bad luck."

"Yes, Mr. Root, he *has* had bad luck, and always *will* have; and he has probably got discouraged because he is owing more than he can ever pay, possibly, and now I am afraid he buys every thing he can get trusted for, without any expectation of paying for it. The sad part of it is, that our people will, knowing these things, occasionally ask him to preach."

Well, my friend who sold the milk went on, and we were discussing ministers' salaries. He maintained that, to get a good honest minister, as well as to get a good honest man for any purpose, you must pay him a decent salary. There are, in the market, doctors, schoolteachers, and even ministers, of all grades. If you take up with a low-priced man you will have to take the consequence. It is a sad state of affairs, dear friends, I know; but is there not some truth in it? Suppose your pulpit is vacant, and you are looking about for some one to fill it. You will have applications from a good many directions; and when you have some one in view it is natural to make inquiries. Well, suppose the inquiries result in something like this:

"Mr. So and so is an excellent man in many respects. He is a fine orator; quotes Scripture accurately, fluently; is a good leader; is pleasant and courteous, etc." But suppose the letter should end up by saying, "He has one grievous fault; he makes purchases unwisely, and is always behindhand and in debt. You can, however, get him at a *very low price*."

Now, I do not know that such a state of affairs exists; in fact, the bare thought of it gives me pain that any of God's appointed servants should be so inconsistent, or blind to the sacredness of their calling, as to utterly spoil and ruin all their chance of leading souls to Christ. I proposed to my friend that he go right over to his neighbor's, and have a plain talk with him in regard to the matter; but he thought it was out of his line.

Now, I do not remember that I ever knew personally a minister who did not pay his debts. I have, however, known several church-members who were very *slow*—yes, some who were quite active Christian workers. Some little time ago one of these brothers was under discussion, and one person remarked, "He has owed me something toward twenty dollars for three or four years, and I have not any idea that he ever expects to pay it." Of course, I remonstrated

ed, but he insisted that it was true. In a few days I saw this brother, and told him plainly that I feared his being so dilatory was a reproach on the cause of Christ. Of course, he had a number of extenuating circumstances to tell me. There had been much sickness in his family, and he did not know that the man he owed felt as he did about it. He, however, admitted that it was a shame, and that the account *ought not* to have been allowed to run as it had been. As he had not the money to settle it just then, I proposed loaning it to him, telling him he could pay me when he found it convenient. He seemed deeply touched. The account was promptly settled, and in a few months he paid me, and interest also, for the use of the money. Now, friends, this is one of the ways of overcoming evil with good. I hardly need tell you that I felt happy over that investment. Why, I do not know when fifteen or twenty dollars has afforded me so much pleasure and real satisfaction. Before this we were not on particularly friendly terms either; but since then it is always a pleasure to me to meet him, and I am sure that he feels exceedingly kind and friendly toward me. If I knew a minister who did not pay his little debts, I think I should go to him in just that way. If his salary is small, and *you can afford it*, just donate him right out enough to set him free from his little embarrassment; and if you do not find that you have been laying up treasures in heaven by so doing, I shall be disappointed.

Now, just a closing word to the bee-friends, especially those who have had trouble with their neighbors in the ways I have mentioned. Do not try to cure these troubles by letting them alone. Do not repeat to your other neighbors and friends the story of their delinquencies and faults. Go to them in a friendly way. If you have the spirit of the little text in your heart they will not be offended. You need not fear that they will think it none of your business; but if you *should* have a neighbor so hardened as that, do not be troubled. It does not hurt a Christian to be snubbed, when he is trying to do his duty. Our pastor, who has gone to China, once said, "A real true follower of Christ can not be snubbed or insulted;" that is, an insult can not be given where none will be taken. The true Christian forgives unkind words, almost before they are uttered, and *makes haste* to overcome evil with good. Why, God bless you, my friend, you do not need to be put out, even if some thoughtless neighbor *has* sold his honey lower than he need to, and thereby spoiled the established price. Go and talk with him about it; let him see that your heart is large enough, and that you are magnanimous enough to be friendly and kind, even if he had done *ten times as much* to injure you. You can not afford to be spiteful and unfriendly because of such troubles. One of our bee-men raises blackberries after the honey season is over. I think I will not tell his name. Well, he has a very large patch, and carries them to the surrounding towns. They were going off nicely at 12 cents, and the proba-

bility was that there would be no need of selling cheaper. Finally some neighbor who had a small patch began selling his for 10 cents. Our bee-keeping friend remonstrated, and finally offered to pay him cash down, right at his home, 10 cents for all he raised. I should have supposed that this, of course, would have settled the matter pleasantly. It seems it did not, however. The ten-cent neighbor refused to sell them in *that way*, but was just contrary enough to insist that it was his *privilege* to carry them around and *retail* them out at 10 cents, if he wished to. A case of the same kind occurred in friend Freeborn's neighborhood, with honey. Perhaps some of you say, "Now, Bro. Root, what are you going to do with men who are stubborn, contrary, and ugly, as in the above case?" My reply is, that I am still going to overcome evil with good.

If you will turn to the 12th chapter of Romans, where our text comes from, and look at the verse just above the text, you will find this:

If thine enemy hunger, feed him; if he thirst, give him drink: for in so doing thou shalt heap coals of fire on his head.

These friends have to be conquered by heaping coals of fire on their heads. Very much depends on how you do it. It requires skill and tact, and, above all, a kindly spirit of love for your neighbor, in your heart. Few men like to be "bossed" around, or, if you choose, most of us dislike to have our liberty of action interfered with. Satan gets his finger in the pie, and sometimes it takes quite a little effort and quite a little time to rout him entirely. But it can be done. Do not, I pray you, be weary in well-doing. Do not get discouraged, and say, "It will not work with this man." Make up your mind that you are going to say, as did Gen. Grant, "We will fight it out on *this line*, even if it takes all summer." Grant was fighting an *enemy*, and *you*, my friend, are fighting an enemy; but the enemy is *not* your misguided neighbor. It is *Satan*. Why, you can not enjoy life at all as God intended you should enjoy it, without being at *peace* and on *friendly terms* with your neighbors. Quite a few times, when I have asked one bee-keeper to drop his work a little while and go with me to see some bee-keeping neighbor, he would say, "Why, the truth is, Mr. Root, we do not have much to do with each other nowadays." I believe, however, that I have always succeeded in getting them to drop both work and hostilities, and go with me; and it has happened more than once or twice, that explanations and misunderstandings were straightened up right in my presence. Now, do not be cross, dear brother, even if people are greedy and selfish. It is nothing at all strange; in fact, it is nothing strange if you find *me* at times greedy and selfish. If you do, however, I want you just to grab right hold of me, and give me a good shaking. If you can not do that, say in your letter, "See here, old friend, why don't you practice a little better what you preach?" I shall not be mad, I assure you. May be I will straighten up. Now, then, whenever you meet evil in any form, especially among

your own neighbors, please believe your old friend when he tells you not to think of overcoming evil with *evil*; but please bear in mind that it is a *thousand times better* in every way, shape, and manner, to "overcome evil with good."

NOTES OF TRAVEL.

A. I. ROOT AMONG THE BEE-MEN OF WISCONSIN.

PERHAPS I was in a happy frame of mind that afternoon when I came into the town of Boscobel. I had just been exhorting my friend the stage-driver to have more faith in humanity and in Christianity; and I do not know but that this made me feel happy. Besides, Boscobel is a very pretty place. Before we fairly got inside of the corporation we saw a very pretty group of bee-hives; but as my time was limited I did not stop. I had in my memorandum the name of Edwin Pike, and we soon found that he was near the center of the town. When we were pretty near where we were directed, I told my companion that he might drop me before the gate of a very pretty little residence, with hives orderly arranged, and painted in tasty colors. Right near was also a very pretty garden, and some thrifty young strawberries just taking root. I took it for granted that this was friend Pike's; but I soon found out that it belonged to Benjamin Rice. Friend Rice was at work with a helper, among the bees. They stopped extracting, however, when they found that A. I. Root was their visitor. Friend Pike's place was only the second house from where we were talking. I suggested that we go over and find him, as I had only about an hour before train-time. Now, I felt pretty sure, when I looked over friend Rice's apiary, that I should not find another so neat and so pretty, in the whole town of Boscobel; but friend Pike was not one whit behind. Why, it is really funny to see two such very nice men with such wonderfully nice homes so close together. I wonder if they ever have any trouble about cutting under prices in the sale of honey. I did not have much chance to get acquainted with their wives and children; but I felt glad to find myself a welcome visitor among such really intelligent, progressive people. Well, I soon learned there was a Mr. Dexter, not half a mile away, who kept a great lot of bees. Two or three hundred, if I recollect right, were in one locality; and when I told them how soon I must leave, they managed to enable me to have a few minutes' call on friend Dexter. Friend D., too, had been extracting; in fact, he was pretty well tired out when I came there. When I went to look at his apiary I expressed surprise that so many bees would do well so close together.

"Why, Mr. Root," said my new friend, "it would not make any difference if I had 500 instead of 200 right here in this yard."

I suggested that perhaps that was an extra good season.

"No, it is not," said he. "We have sea-

sons like this right along—that is, when the basswood is in bloom."

There were such exceedingly great clusters of bees hanging to the front of his hives that I asked him if he was sure they all had room inside. He replied:

"Why, I am perfectly sure they have *not* all the room inside. See here. Do you see along that row of hives? Well, you notice that at one particular point the great clusters on the outside suddenly cease, and the hives are comparatively clean."

I nodded.

"Well," resumed he, "we got just so far in that row with extracting, and every hive was crammed full as fast as we came to it."

I suggested that, if they were *my* bees, I should keep on extracting until dark, any way; but he shook his head, and said that he had already done hard work enough for one day. His friends told me afterward that he was one of the sort of men who do not worry themselves greatly, no matter how much honey is going to waste; and very likely there are extremes both ways in this matter; but I think there are quite a few among our readers who would not only extract till dark, but possibly till midnight or later, rather than let the bees hang by the bushel on the outside of the hives for want of room. It was about train time. As I started for the buggy I told friend D. that, if it would not make too much trouble, I should like to shake hands with the women-folks, even if I did no more. Did it ever occur to you, dear reader, that there are lots of happy and pleasant homes in this wide world of ours? It is true, there are some contrary and difficult people to get along with; but I tell you there are ever and ever so many good people also; yes, and even among the bad ones there is a good side to almost everybody. I guess I was in a mood that day of catching hold of the good, and not seeing the other, if there was any; but I shall always remember Boscobel as a very nice place with many nice people in it. I told you, in Our Homes for last issue, about my visit that same evening with friend Snyder. With your permission we will just skip along until I step from the buggy and say good-by to Mr. Fiddler and his wife. This was just before the residence of Mr. Pickard, at Richland Center. Mr. P. had just got on his mowing-machine to cut some grass. He saw me come down the lane with my Kodak strapped across my shoulder; but he remarked to his hired man that he thought I must be some book-agent, and so he drove to the other end of the lot just as fast as he could, indicating that he was very busy. I wonder if there are any book-agents among my readers. If so, this gives you something of an idea of how people, many of them, feel when they see you coming. Well, I did not bother friend P. just then. The young ladies at the house told me their mother was in the apiary; but before I got there my attention was called in another direction by a babbling brook that came forth from a beautiful little spring that just poured out of the ground on one side of the spring-house. A little way off from the spring I found a very bright,

intelligent lady taking entire charge of something like 200 colonies. With the help of an assistant they had been extracting; but a swarm had just come out, and while we were talking another came. The day was intensely warm, and I could not but admire the energy that this lady showed in going right out in the sun and giving the bees the needed care which came all in a heap, as it were, during the height of the basswood yield. Her attention was first directed to bees when friend Freeborn, a year or two before, planted an out-apiary in her vicinity. She became interested, and finally purchased the apiary complete. Her first venture was in paying \$600 for 160 colonies of bees, and this while she knew next to nothing about bees. I should have said at once that it could result in nothing but failure. Not so, however. If I remember correctly the bees were all paid for with the first crop of honey, and now she is a well-to-do bee-keeper. "Who does the housework?" do you ask? Why, a couple of nice bright daughters manage it nicely, and it probably does them as much good, as it does the mother to manage the bees. Think of it, ye of the fair sex, who are thinking the heat is too great to do more than fan yourselves, sit on the sofa, and wait till it gets cooler.

Before I reached friend Pickard's my attention was taken up with a queer-shaped bluff in the neighborhood of the apiary. The ground rises so abruptly on all sides that it takes a man or woman of pretty good wind to climb it on a hot day; and when you arrive at the summit you are confronted with a ledge of rocks rising perhaps fifty feet higher than the summit of the hill. By a sort of winding stair, of nature's own make, filled out in one place with a crotched tree, you are enabled to climb to the summit. I tried taking this bluff with the Kodak. It was a pretty large subject for so small an instrument, and the view was hardly worth reproducing. On the way down the hill I rather forgot the warm weather and the perspiration my climbing had put me in, at the sight of a blooded Jersey bovine belonging to friend Pickard. He devotes his attention to fine cattle, while his wife tends to the bees. We tried the Kodak on his majesty—that is, when we could get him to stop bellowing and pawing long enough to get his picture; but for some reason (probably the operator's inexperience) we did not get a picture fine enough to reproduce. I should have enjoyed myself greatly had it been possible for me to stay a day or two; but my leave of absence was coming so near to a close that I fear it pained my good friends by declining to stay to dinner; and a little later on, friend P. and myself were speeding behind a couple of blooded ponies, on the way to friend Freeborn's. You will remember that it was to call on this latter friend that my visit was mainly undertaken. More beautiful springs enlivened the way, as we passed through the basswood timber of Richland County. But I think I shall have to tell you in our next of my visit to friend Freeborn's.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

ENLARGEMENT AND MULTIPLICATION IN OUR DOMESTIC INDUSTRIES.

THE question has often been asked, "What may a single colony do in the way of increase in a single favorable season?" I do not believe that any of us yet know the possibilities, even by natural swarming. In poultry-raising, how many chickens may one hen become the mother of in a single year, or say two years? Before you answer, perhaps you had better think about it a little. Again, how shall we manage to get the largest number of colonies that will winter over, or, in the other case, the largest number of good strong healthy chicks? Just at present I am having a good deal of enjoyment in seeing what four strawberry-plants may do in one season. They are in the middle of one of our highly fertilized plant-beds. The ground is nearly half manure, and it has had considerable bone dust worked into it besides. The soil is nearly two feet deep. Whenever I want to enjoy myself I just go and take a look at those strawberry-plants. I especially enjoy the beauty of the foliage when the dew is on the leaves. Well, how shall we make a single strawberry-plant do its utmost? I did think at one time that removing strong plants by means of our transplanting-tubes would be a gain; but now I am inclined to think you would do as well, or better, as follows: Set your one strawberry-plant in the middle of a bed of fine rich soil, say a plot of 20 feet square, and may be more. As soon as a runner makes its appearance, encourage it to grow in a straight line until the new plant appears; then lay the runner in a shallow trench, may be half an inch deep. Push the fine dirt over all except the little plant at the tip end of the runner. Divide the runners all around the plant in the shape of spokes to a wheel; but make each one reach out just as far from the center of the plant as possible; that is, make them come out into new ground and sunlight just as soon as you can without severing the runner. If you commence early in the spring, and keep off all fruit-buds, by July or August you will have a pretty fair strawberry-patch. It is quite an exciting little problem to so manage as to give each little plant as much room as you can, and at the same time let dame Nature have full sway by putting out just as many runners as she wants to. The plant will seem to catch the enthusiasm, and strain every nerve in the effort to propagate its own species and build up a thriving little family. Pick out every weed as soon as it gets barely visible to the naked eye. Assign a place to each runner, and cover it with a little dirt, keeping the ground constantly raked fine, and your 20 feet square of strawberry-patch will be a surprise and joy to you. When the plant gets to booming, it wants care almost every morning. What will you do next year if you are ready for fruit? Well, I have not figured out just yet. You can take up the plants with the transplant-

ing-tubes this fall or in the spring; but I don't exactly know how to manage it as it is, without a great amount of hand-weeding. Can anybody help me?

If you are going to see how far you can increase one strawberry, or perhaps half a dozen, it will pay you to commence with some of the high-priced new varieties; and we suggest the Jessie, Bubach, Haverland, or the new Miami. The latter has recently been brought out by one of the bee-friends. See advertisement in this issue.

You can get a large amount of fruit by letting plants stand without any transplanting at all; for this is exactly what they do in the matted-row system. But it is disorderly, and very apt to be weedy. There is not nearly room enough, especially if you want large-sized berries. I will tell you how we manage to get our large berries. In fact, this 28th day of August (although right in the midst of a tremendous *hot dry spell*) we are putting out our plants. The ground is where we grew Ford's Early sweet corn. Just as soon as the last ears were picked, the stalks were cut down and taken off the ground; then we covered it with the best stable manure we could get, until we had on as much as could well be plowed under; in fact, a boy followed the plow with a stick in his hand, to push the manure out of the way whenever it piled up in front of the coulter. After plowing, it was harrowed first with the Acme, then with the disk harrow, and then rolled down level with the roller. Then we spread on another coat of very fine manure with the manure-spreader. This fine manure was "harrowed in" with the *grain-drill*, while we sowed 500 lbs. per acre of Mapes' "Complete" fertilizer. Perhaps you think this is a tremendous manuring; but I tell you, friends, when you are fixing ground for strawberries, there is a chance for getting your money back, even if you do "manure tremendously."

Now, then, we are ready to fix the ground for plants. Our ground is heavy clay; but we get more and larger berries on our heavy clay than we do on the creek-bottom land. The creek bottom is the place for nice plants with great bushy roots; but the clay hills are the place for fruit. Of course, the ground is underdrained. But this is not enough. We have suffered so much from wet that we plow our ground into pretty high furrows, a great deal as people fix it for sweet potatoes, and plant our berry-plants on the top of the furrows. Of course, for strawberries the furrows are flattened on top. With our disk marker we go over the ground and furrow it until it looks exactly like the cut below.



FIXING THE GROUND FOR STRAWBERRIES ON CLAY LAND.

Our disk furrower makes the bottom of the furrow concave or trough-shaped, as we see at A. Now, while we mark it for strawberries we fasten a piece of board between the disks so as to make a small furrow at the top of the ridge, just as you see it at B. This morning, we, by means of hose and several lengths of iron pipe, carried water

from the hydrant right over to the strawberry ground. As the ground was baked hard, and dry, the water was first turned on the plants that were to be taken up.

When it was wet enough, our transferring-tubes were pushed down over every good strong plant. They were then placed on a wheelbarrow and carried to the new ground.

Now they are set just about a foot apart in this shallow trench B. While they stand here, before the tins are taken off, run a Planet wheel-hoe so as to throw the sharp ridges of dirt each side of B, up against the transplanting-tubes. Now a boy comes along with a watering-pot and fills the tubes with water, as I have explained. When the contents of the tubes become soft, like mud, they are shaken a little, and the tins are withdrawn; then we go after another load of plants. The fine earth thrown up by the wheel-hoe settles around the plants so as to protect the wet ground from baking under the influence of the hot August sun. With three or four hands that are used to it, the work goes on so rapidly that we do not find it expensive; and in several thousand plants, scarcely one dies. In our plot, set a year ago in just this way, the losses were so few that we never went over it again to replace them; and the crop of Jessies in June abundantly paid all expenses. But a better crop is to come next spring. The cultivation is very simple. Whenever they get just a little weedy, this same disk marker is again drawn through the field, the horses walking in the paths A, and the disk scraping the ground perfectly clean and smooth, at the same time throwing a little fine earth around the plants. All the rest of the work is a little hand-weeding along the narrow ridge where the plants stand, and cutting off the runners as fast as they appear. Now, I think that this matter of watching for runners, and pinching them off, is just the nicest work in the world; but I can not find a man or boy that seems to like it; in fact, the greater part of them will say it is all done, when I can see runners starting out here and there all over the patch. It is because they do not *love* the work as I do. The sight of a runner indicates that the plant is getting hold of the manure and "feeling its oats," as we used to say of a spirited horse. At this stage, pinching off the runner is laying the foundation for those great berries that look like peaches in size, and are away ahead of them in flavor. Why, I just wonder that the whole world does not grow happy and healthy in raising berries. Some of you have thought friend Terry a little extravagant in recommending strawberries instead of patent medicines. Now, look here, friends: I have been in very poor health; in fact, they had to turn me out—not to "grass," but to gardening and berry-raising, to save my life. I am now exceedingly strong and well, and can work out in the hot sun from daylight till dark, and just laugh. Several have criticised friend Terry because he spoke about eating a *quart* of strawberries at a meal. Why, you are beside yourselves. I not only eat a *quart* of strawberries at a meal, but ever so many more, between meals. When I get tired and

thirsty, between ten and eleven I take a pint basketful and eat them just as you would an apple. Strawberries are gone now, so I have to take blackberries.

Well, a great many say we must not eat things before going to bed. Now, I have repeatedly taken a pint of blackberries, just at dusk, to see what the result would be. There was not any bad result at all; but I felt just as fresh, happy, and strong in the morning as one might who has never known any thing of sickness. In fact, I have tried repeatedly so see what harm it would do to eat berries in excess at almost any time of day. While I am engaged in my outdoor work it does not do a bit of harm. I notice this, however, that I am getting a real dislike for meat victuals during hot weather. Give me berries and milk and good bread and butter, and you may have the rest. Plenty of berries is a great saving of the meat-bill; and where you raise the berries yourself they are *certainly* the cheapest. Why, my good friend, have you not felt repeatedly, especially as you get up in the morning, during hot weather, that you do not want any *cooked* breakfast at all? A bowl of good milk from the cellar or refrigerator, some nice ripe berries, and a little good bread and butter to go with it, seems to be a relief. Possibly your good wife may find it a relief also. Of course, there are things raised in the garden that seem to take the place of berries; but although I have been, at different times in my life, a great advocate of meat, and I am yet in cold weather, I do believe that health and happiness come with fresh *fruits and berries*, instead of animal food, in *hot weather*.

THE PEACH TOMATO, ETC.

After my remarks in the last issue, we received the following from W. J. Green, of the Ohio Experiment Station:

A VEGETABLE-WAGON BELONGING TO OUR OHIO EXPERIMENT STATION.

Friend Root:—You speak favorably of the Peach tomato, but say nothing concerning its quality. In my opinion it is unexcelled for slicing. We send out a wagon, after your plan, to dispose of our garden products, as so many people came here to buy vegetables and fruits, and annoyed us not a little. To get rid of this annoyance we commenced delivering our products at the houses of our customers. We find this part of our work to be much more useful than we supposed it would be. We simply thought to turn our products into cash, and then put the money into improvements in other experimental work; but we have found that we can now carry our work a step further than we had thought of doing. We now not only learn the comparative value of the varieties in the field tested, but, what is often quite as useful, we learn what sells the best in the market. By retailing we learn this much better than by wholesaling. The Peach tomato would hardly sell at the groceries; but some of our customers got a taste of them, also to using them, partly for table decoration, as they would peaches or any showy fruit. That is, they set the tomatoes in dishes on the table, whole, and slice and eat as wanted. The result is, several different ladies want all we have, and our salesman (Mr.

Turner, a Medina Co. boy) says that he could sell Peach tomatoes the season through at five cents per quart.

I can not say where or when the peach tomato originated; but it is not new. It seems to have dropped out of cultivation, nearly, for years. Landreth catalogued it a year or two ago. Livingston brought it before the public more prominently last year, and now I hope it will not be allowed to drop again. Careful selection ought to increase its size.

W. J. GREEN.

Ohio Experiment Station, Columbus.

Many thanks, friend G. But I am a little surprised, even now, that you lay no stress on the fact that the Peach tomato *never* rots. As you suggest, it can not well take the place of our large tomatoes, on account of its inferior size; but its other qualities, especially its unexcelled flavor, are, I think, going to give it a prominent place in our gardens. I am rejoiced to know that you are sending out a wagon. Why, it can not help but be a splendid thing in connection with your work of testing fruits and vegetables. I had not thought of it before, but there is no better way to test things in the world than to take them fresh from the garden and present them to the attention of people around at their homes. And I think it will demonstrate that many a man—yes, and woman too—who is out of employment may earn a good livelihood by raising and disposing of things in this way. There is another thing that I much enjoy in connection with our vegetable-wagon: It comes around about nine o'clock for fresh berries and vegetables. Well, in front of our store we have a long stand for the display of fruit and garden-stuff. As the boys bring the things in from the field, it is my *privilege*, when not too busy, to arrange them on this stand. We have apples, pears, peaches, berries, grapes, etc.; cabbages, squashes, tomatoes, little yellow pumpkins (the early ones I have told you about), summer squashes, beets, turnips, and every thing that grows. Well, I have learned that, by making a pretty show of these things, people will stop as they go by, and I have often made quite a few sales in this way. A great deal depends on having things look well. For instance, Livingston's Beauty tomatoes are put in clean new baskets holding half a peck, each tomato being wiped with a damp cloth until its glossy surface shows to advantage. By the way, I am inclined to think that there is not a prettier tomato grown than Livingston's Beauty. When people ask what kind they are, I reply, "Livingston's Beauty." They often exclaim, "Well, they are beauties, sure enough." The larger Ignoutums and some other varieties are mostly round and smooth; but the Beauties are *all* handsome, every one of them. This year we have not an ungainly tomato on these vines. Brother Livingston, we thank you for having given us the Beauty tomato, and we feel a little bit proud of the fact that you are an Ohio man, and right near our Experiment Station at Columbus. Now, Bro. L., can't you take hold of this *Peach* tomato and make it just a little bit "bigger"? May be Bro. Green can help a little.

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CONVENTION NOTICES.

The next meeting of the Fayette Co., Ohio, Bee-keepers' Association will be held at the residence of Mr. Joseph Bonham, Washington C. H., O., on Wednesday, Oct. 2, 1889, at 10 o'clock. S. R. MORRIS, Sec'y.

The annual meeting and basket picnic of the Progressive Bee-keepers' Association will be held at the residence of Mr. F. E. Dutton, near South Newbury, Georgia Co., O., on Thursday, Oct. 3, 1889. All interested are invited to attend. Bedford, O., Sept. 10. MISS DEMA BENNETT, Sec'y.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desiring to become a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary. R. F. HOLTERMANN, Sec'y.

The Northwestern Bee-keepers' Society will hold its annual convention at the Commercial Hotel, corner of Lake and Dearborn Sts., Chicago, on Friday and Saturday, Oct. 11 and 12, at 9 A.M. Arrangements have been made with the hotel for back room, one bed, two persons, \$1.75 per day, each; front room, \$2 per day, each person. This date occurs during the exposition, when excursion rates on the railroads will be one fare for the round trip, good from Oct. 10 to 14, inclusive. There has been a fair crop of honey in the West, and an old-time crowd may be expected at this revival of the Northwestern from its "hibernation." W. Z. HUTCHINSON, Sec'y.

Black and Hybrid Queens for Sale.

Fifteen choice untested Italian queens, at 35 cts. each, or four for \$1.10. G. H. DENMAN, Pittsford, Mich.

Four very prolific hybrid queens, two of them nearly pure Italians, at 30c each, or all four for \$1. FRANK MOORE, Frost, Ky.

BEE-KEEPERS and FRUIT-GROWERS,

Send for my price list of BEE-KEEPERS' SUPPLIES and STRAWBERRY-PLANTS. Twenty-five varieties to select from. Address F. W. LAMM, Box 106, SOMERVILLE, - BUTLER CO., OHIO. 18-23db

Writing and Pencil Tablets.

We have secured a bargain in these, and propose to give you the benefit of it. We have thirteen different styles, of which we give size, number of leaves, name, and price, in the following table. You can write with a pen on any of the tablets, although most of them are designed for penciling.

Name or Designation	Size in inches	No. of Leaves	Post on 1	Price 10
Our Pets Ruled Pencil Tablet	5 x 8	60	5	25
No. 0 Ruled Pencil Tablet	5 1/2 x 8	70	5	25
Ideal Unruled Pencil Tablet	7 x 10	30	5	30
Monumental Unruled ditto	8 x 12	65	10	5 15
Greenaway Ruled ditto	7 1/2 x 10 1/2	42	6	5 10
No. 00 Ruled Pencil ditto	4 x 10 1/2	70	10	7 60
Geographical ruled ditto	6 x 9	180	12	7 60
Student's Note-Book	5 1/2 x 8 1/2	80	8	7 60
America Writing Tablet	6 x 9	60	8	7 60
No. 36 Writing Tablet	5 1/2 x 8 1/2	65	8	7 60
No. 65 Thin Writing Tablet	5 1/2 x 8 1/2	80	7	15 20

In case we get out of any one style we reserve the right to substitute one as near like it as possible. Notice, the cost of mailing is greater than the original cost, so that you don't get much benefit of the low price unless you can order with other goods by freight. "Our Pets" has assorted chromo pictures of children with pet animals on the covers. "Ideal" has assorted child's faces. "Monumental" has a picture of Garfield Monument. "Greenaway" series have assorted chromo pictures. "Geographical" have assorted maps of different States. Student's note-book is thoroughly bound, cloth back. "America" has lithographic views of several celebrated scenes in America.

A. I. ROOT, Medina, O.

BEES SEND for a free sample copy of the BEE JOURNAL - 16-page Weekly at \$1 a year - the oldest, largest and cheapest Weekly bee-paper. Address 161fdb **BEE JOURNAL, Chicago, Ill.**

BURNED OUT!

My bee-hive and section factory was burned to the ground Aug. 13. All orders sent will be filled as before. I will not rebuild, but buy and sell.

W. D. SOPER, Jackson, Mich.

Cash for Beeswax!

Will pay 21c per lb. cash, or 24c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 30c per lb., or 35c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

THE REVISED LANGSTROTH, and DADANT'S FOUNDATION. See advertisement in another column.

NOW IS THE TIME
FOR MARKETING HONEY, AND NEW YORK
IS A GOOD MARKET.

We make liberal advances in CASH on consignments, sell quickly at highest obtainable market prices, and pay the net proceeds IMMEDIATELY after honey has been sold. We charge for commission and GUARANTEE of payment, five per cent. Ship by freight to

F. G. STROHMAYER & CO.,
WHOLESALE HONEY MERCHANTS,
122 WATER STREET, NEW YORK.

KIND WORDS FROM OUR CUSTOMERS.

The scales and other goods came to hand all O. K. The scales are very nice, and are cheaper than we could get them here by having a merchant to buy them at wholesale.

MILLER BROS.

Bluffton, Mo., Aug. 1, 1889.

I received the bees in very good order and shape. The evening I received the bees, I put them in a hive, and next day the Ohio emigrants were working splendidly. Many thanks.

J. M. G. KALLISH.

East Portland, Oregon, July 27, 1889.

THE BUCKEYE SASH-LOCK.

The goods ordered from you came to hand in good shape. The buckwheat (Japanese) is up and doing well. I expect an immense crop. I never saw buckwheat stand nicer. The Buckeye sash-locks are nice. My mother says they are just the nicest things to fasten up windows. I wonder how you can sell them so cheap.

H. D. FRIEND.

Douglas, O., Aug. 10, 1889.

ONLY 20 BEES DEAD OUT OF A POUND, IN GOING CLEAR TO TEXAS.

The bees and queen came through safe and sound, not over 20 dead bees in the case. I could not find the queen at first, or I would have answered sooner. We have found her now. She is all right.

J. B. FULTON.

Dripping Springs, Tex., Aug. 10, 1889.

2000 EGGS A DAY, IN ONLY 4 DAYS AFTER GOING THROUGH THE MALES.

The tested queen I received from you was successfully introduced the 19th, and on the 23d I found her depositing eggs at the rate of 2000 per day. I also wish to say the queen you sent me is a very handsome as well as a very large one for a young one. Please accept thanks for prompt shipment.

Reinersville, O., Aug. 24, 1889.

J. E. PECK.

THE WHITMAN PUMP A TERROR.

The Whitman pump arrived in good condition. Thanks for your promptness. The pump is a jewel, but I don't know but I shall regret the day I got it, for in the hands of my little boy it is a terror. The cat, dog, chickens, his sister, and even papa, have to feel the force of that Whitman pump.

Dehesa, Cal., Aug. 23, 1889.

A. W. OSBURN.

DOUBLE QUICK.

I received my goods yesterday at noon. I think it was the quickest time on record. I wrote my letter and dropped it in the postoffice on the evening of the 20th, but it did not go out till the next morning. Your card states you received it the 22d, and I received the goods the 23d at noon. Who can beat it?

JOS. C. DEEM.

Knightstown, Ind., Aug. 24, 1889.

CHEESE AND HONEY.

The goods came to hand all right; and to say that I am pleased, would not near express my feelings. The goods all through are the nicest I ever saw. I have had but little time this year to devote to bees, as my work has been of such a nature that I could not give them any time except at night, as I have had charge of a cheese-factory, and we have manufactured from 500 to 600 lbs. per day; and, as you state in your last journal, my time was my employer's until night; however, I have increased from 24, spring count, to 70, and have secured all of 2000 lbs. of comb honey; so you see my bees were busy as well as I.

M. D. JOHNSON.

Webster, Ia., Aug. 15, 1889.

HOW TO TELL WHEN A WATERMELON IS RIPE, ETC.

I raised nearly \$50.00 worth of sweet-potato plants this year. I got every thing I know about raising them, from GLEANINGS. Market-gardening is not quite so glorious as with you. Our city has 3500 people, and only two or three market-gardeners; but the foreign farmers bring their produce, cabbages, etc., to the stores, and raise hovee with prices. Peas are only 60 to 80 cts. per bushel for American Wonder, and big lima, like Stratagems, at

that. I wish you would start people to writing about how to tell a ripe watermelon by sight. My hearing has broken down, and how can I tell when my Green & Gold's, White Gems, etc., are ripe? I wish Mr. Terry or Mr. Henderson could be heard on this point, as much loss comes from picking green melons.

M. S. BENEDICT.

Crete, Neb., July 5, 1889.

THAT SINGER SEWING-MACHINE.

I have received and tried the No. 4 Singer machine. It is not only a beauty, but does good work. We consider it a bargain. I must compliment you on being able to offer such a machine at so small a price. It gives entire satisfaction. I have 110 stands of bees. They have done very well.

Civer, Ill., Aug. 27, 1889.

JAMES F. NEWTON.

\$5.00 Secures a Home in the "Sunny South."

There has been placed in my hands for sale, 100 lots in a newly laid-out "city," in one of the most beautiful and healthful portions of Nature's great sanitarium—Western North Carolina, at prices ranging from \$5.00 to \$25.00 each, according to size and location. *Title perfect; warranty deed given.* Near the junction of two-trunk line railroads, one completed, the other nearly so; climate unsurpassed, winters mild, summers pleasant; *fine water*, beautiful mountain scenery, good soil; gold and other minerals in vicinity; building material abundant and cheap. Lots selling rapidly. Several farms for sale. For particulars address

C. F. PARKER, Montone, Ala.

In responding to this advertisement mention GLEANINGS.

A NEW BOOK ON BEES, and DADANT'S FOUNDATION.

See advertisement in another column.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ad's intended for this department must not exceed 5 lines, and you must say you want your ad. in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange, country-store building and one-half acre in Barry Co., or 80 acres fine land in Emmett Co., Mich., for small place in good locality for honey and fruit. Would take some farm stock, or bees in part. J. L. COLE, 18d Boyne City, Charlevoix, Mich.

WANTED.—To exchange Partridge Cochins for 18d Apiarian supplies. F. WEATHERILL, Jonesville, N. Y.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars. CHAS. DADANT & SON, 18tfdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange 3 L. frame nucleus, with yellow Italian queen, in one-story Simplicity hives, worth \$2.00, for white paint, or offers. MRS. OLIVER C. SHERBURNE, Chenango Co., N. Y.

WANTED.—To sell or exchange, Italian bees and queens, and supplies. Address OTTO KLEINOW, 4tfdb No. 150 Military Ave., Detroit, Mich.

BUBACH, Jessie, Warfield, Hoffman's Seedling, May King, and Crescent strawberry-plants, cheap, in exchange for comb or extracted honey, sections, or beeswax. Plants true to name. Write to E. T. FLANAGAN, Bolleville, Box 995, St. Clair Co., Ill.

WANTED.—To exchange extracted honey for a Barnes improved saw, sections, foundation, family Bible, or Webster's Dictionary. 17d WM. PEARSON, Oswalt, Iowa.

A POSITIVE FACT

QUEENS BY RETURN MAIL

From the Old and Reliable Knickerbocker Bee-Farm (Established 1880).

Circular and Price List Free.

13-14tfdd G. H. KNICKERBOCKER,
BOX 41. Pine Plains, Dutchess Co., N. Y.

In responding to this advertisement mention GLEANINGS.

THE BEST YELLOW ITALIAN QUEENS AT \$1.50 EACH.

I also wish to sell my newspaper subscription agency on account of the press of other work. Catalogue, and any other information free on receipt of postal request. The highest bidder takes it. Good reference given and expected.

C. M. GOODSPEED, 4-50d THORN HILL, N. Y.

In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Tested, \$1.50. Untested, 75c. Mismatched, 35c. Send for price list.

MISS A. M. TAYLOR, Mulberry Grove, Bond Co., Ill.
17tfdd Box 77.

THE HIVE AND HONEY-BEE, and DADANT'S FOUNDATION.
See advertisement in another column.

FOR PURE ITALIAN BEES,
POLAND-CHINA SWINE, WHITE AND BLACK
FERRETS, WHITE RABBITS, WHITE
AND BROWN LEGHORN CHICKENS, AND
MALLARD DUCKS, ADDRESS
N. A. KNAPP, ROCHESTER, LORAIN CO., OHIO.
17tfdd

Cash Paid for Beeswax.

CORRESPONDENCE SOLICITED.

R. B. LEAHY & CO., Higginsville, Mo.
17-18-19d

ITALIAN QUEENS by return mail; tested, \$1;
untested, 75c. LEININGER BROS.,
16tfdd Douglas, Putnam Co., Ohio.

MUTH'S HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers." (Mention Gleanings.) 17tfdd

Italian and Carniolan Queens.

Thirty years a queen dealer. Prices low. Circular free. HENRY ALLEY, Wenham, Mass.

In responding to this advertisement mention GLEANINGS.

No. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50 Knife
No. 4, 1.25; No. 5, 1.00; No. 6, 65¢ \$1.15

On receipt of the above price

SMOKERS and KNIVES

will be sent postpaid. Descriptive circulars will be sent on receipt of request card.

Bingham & Hetherington Smokers and Knives are staple tools, and have been used ten years without complaint, and are the only stovewood burning clear-smoke bee-smokers; no going out, no vexation. Address

BINGHAM & HETHERINGTON, Abronia, Mich.

In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

We are now selling our No. 1 V-groove sections, in lots of 500, at \$3.00 per 1000; No. 2 sections at \$2.00 per 1000. For price of Italian queens, foundation, smokers, etc., send for price list.

J. STAUFFER & SONS,
Successors to B. J. Miller & Co.,

Nappanee, Ind.

16tfdd

In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheap. We are offering our choicest white one-piece 4½x4½ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. 17tfdd

G. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

California.

FOR SALE.—A well-established trade in the supply business. For particulars apply to
16-17-18d Box 2, Duarte, Cal.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at \$1 a year. Big cash premiums. Sample FREE. THOS. G. NEWMAN & SON, 923 & 925 West Madison Street, CHICAGO, ILLS.

In responding to this advertisement mention GLEANINGS.

For Sale Cheap.

We have to sell at a bargain a 1-horse-power Shipman coal-oil engine. It was a second-hand which we sent to the factory and had made over new. Is now as good as a new engine. We offer it for \$80. For any one who wants only a small power it is a bargain. Price of a new one I believe is \$125.00.

A. I. ROOT, Medina, Ohio.

THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free.

W. Z. HUTCHINSON, Flint, Mich.

Please mention GLEANINGS.

13tfdd

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75
PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

COODELL & WOODWORTH MFG. CO.,
3tfdd ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

AN OLD BEE-BOOK REVISED, and DADANT'S FOUNDATION.
See advertisement in another column.

The Secrets of Success in the Growing of Small Fruits

Gives you the benefit of several years' experience in growing berries for market, together with my illustrated catalogue and price list of berry-plants; sent free on application. Now is the time to set strawberries for next year's fruiting. Jessie, Cloud, and other new varieties. 16-19db

I. A. WOOLL, Elsie, Mich.

In responding to this advertisement mention GLEANINGS.



HONEY COLUMN.

CITY MARKETS.

PHILADELPHIA.—*Honey.*—Honey in the comb is now arriving, and the demand increasing accordingly. We have advanced our prices, and feel confident of their remaining as quoted. We quote as follows: Fancy white, 1-lb. in neat cases, 17@18; same, 2-lbs., 14@15; fancy buckwheat, 1-lb. in neat cases, 12@13; same, 2-lbs., 10@11. Off grades of all kinds 1@2c less than above. Extracted is same as our letter of Aug. 15.

Sept. 5. WALKER & MCCORD,
32 & 34 So. Water St., Philadelphia, Pa.

COLUMBUS.—*Honey.*—Our market remains about the same for No. 1 honey in 1-lb. sections. Poor and off stock meets with slow sale, trade wanting fine white clover or basswood. The market on extracted honey about cleaned up; a shipment of that kind would meet with ready sale. We would advise all parties that ship to this market to ship by freight, as the charges are less, and goods come in better condition.

Sept. 9. EARLE CLICKENGER,
Columbus, Ohio.

NEW YORK.—*Honey.*—Good demand for both comb and extracted honey. We quote: Fancy white, 1-lbs., 16; 2-lbs., 14. Off grades, about 2c a lb. less. Buckwheat, 1-lbs., 11@12; 2-lbs., 9@10. Extracted, basswood and clover, 8; orange blossom, 8; buckwheat, 6@6½; California, amber, 7@7½; Southern, 65@70c a gallon.

Sept. 10. HILDRETH BROS. & SEGELKEN,
New York.

MILWAUKEE.—*Honey.*—The new crop of honey is coming in and is of very fine quality. The demand is fair, and values easy. Will quote: Choice white, 1-lb. sections, 14@15; second quality white, 12½@14; old 1-lb. sections, 10@12. Extracted white, in tins and pails, 8@8½; same, in barrels and kegs, 7@8; dark, in barrels and kegs, nominal, 5@6. *Bee-wax*, 22@25.

Sept. 5. A. V. BISHOP,
Milwaukee, Wis.

CINCINNATI.—*Honey.*—There is a fair demand for all kinds of honey. Arrivals of extracted honey are good, while good comb honey is scarce in our market. The latter sells at 11@16 in a jobbing way. Extracted honey brings 5@8 on arrival. *Bee-wax*.—There is a good home demand for this, which brings 20@22 for good to choice yellow on arrival.

Sept. 11. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

BOSTON.—*Honey.*—Honey has arrived quite freely, and it has been the disposition of some receivers to sell. Owing to the warm weather, prices have had to be shaded. Our market to-day is: 1-lb. white, 16@18; 2-lb. white, 16@17. Extracted, 8@9. *Bee-wax*, none in stock. We look for better prices later in the season, and would not advise bee-keepers to rush their honey on to the market.

Sept. 9. BLAKE & RIPLEY,
Boston, Mass.

KANSAS CITY.—*Honey.*—The market is still slow. White comb 1-lb., 14@15; same, 2-lbs., 13@14; dark comb, 1-lb., 10@12; same, 2-lb., 10. Extracted, white, 7@8; amber, 5@6. *Bee-wax*, 20@22.

Sept. 8. CLEMONS, CLOON & CO.,
Kansas City, Mo.

PHILADELPHIA.—*Honey.*—The inquiry for No. 1 honey, 1-lb. sections, has begun. I imagine the price will start at about 13@15c, the latter being my usual starting price. Yellow *bee-wax* is in demand, at 23c.

Sept. 9. CHAS. E. SHOEMAKER,
44 So. Water St., Philadelphia, Pa.

NEW YORK.—*Honey.*—Extracted, California, orange bloom, white clover and basswood, 8c. Comb honey, 1 lb. fancy white, 16c; 1 lb., fair, 14; 2 lb., fancy, 14; 2 lb., fair, 12. Demand very good for first quality.

Sept. 10. F. G. STROHMEYER & CO.,
New York.

DETROIT.—*Honey.*—Very little coming in; demand slow. Best selling at 14@15c. *Bee-wax*, 24c.

Bell Branch, Mich., Sept. 9. M. H. HUNT.

CHICAGO.—*Honey.*—Honey is not selling very fast. We are now expecting trade to be better, as the weather has got colder. The market is well supplied, and sales are made in some instances very low. No lots can be sold at over 13@14c, and some less, if at all out of prime condition. Extracted 6@8; sales chiefly at 7c for best white in barrels or kegs. *Bee-wax*, 25; very little offered.

Sept. 10. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—Market firm on all grades of comb honey; receipts now not equal to demand, and we think prices are now the best of the season. Comb, white, 16@18; mixed, 14@15; dark, 12@13; mixed, 12@14. Extracted, white, 7½@8½; dark, 6@7. Consignments solicited.

Sept. 8. H. R. WRIGHT,
Albany, N. Y.

WANTED.—200 or 300 lbs. of good extracted honey. Who will furnish it the cheapest, delivered at Brattleboro, Vt., or Greenfield, Mass.?

W. J. HILLMAN, Green River, Vt.

WANTED.—Several hundred pounds of white extracted honey, in 60-lb. square tin cans. Price must be low, because freight charges are very high to this distant place.

G. G. MEAD, Ferris, Wyoming.

FOR SALE.—One barrel of A No. 1 basswood honey, 550 lbs., at 7c, and 800 lbs. of honey-dew honey, at 5c. No charge for package.

H. O. McELHANY, Cedar Rapids, Iowa.

FOR SALE.—9000 lbs. of honey, in scant 1-lb. sections, crates holding 12 sections; will take 13c for white clover, and 11c per lb. for dark, f. o. b. here.

JOHN HANDEL, Savanna, Ill.

FOR SALE.—About 1000 lbs. of white clover and basswood each, of extracted honey; will deliver on railroad, in 60-lb. cans, for 8c per lb. I have also about 1500 lbs. of white comb honey in 1-lb. sections; will take 12c per lb., delivered on track.

W. R. HASLETT, St. Anthony, Iowa.

FOR SALE.—1000 lbs. extracted white-clover honey, at 8c per lb. This honey is in 60-lb. tin screw-cap cans; is well ripened and heavy. Will sell part or all, and deliver at depot here, at the above price.

R. B. LEAHY & CO., Higginsville, Mo.

FOR SALE.—6000 lbs. honey, 5000 white and 1000 dark. White honey at 7c per lb., f. o. b. here in barrels of 540 and 550 lbs. each; in tin cans of 60 lbs. each, 2 cans boxed together, at 7½c per lb. Dark honey at 6c. Shipped same as above.

ROBT. QUINN, Shellsburg, Iowa.

FOR SALE.—Quite a quantity of white clover and basswood honey, put up in 60-lb. square cans. Will take \$4.75 per can at my place. Correspondence solicited.

17-18d H. L. ROUSE, Republic, Iowa.

FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections, and 12-lb. cases, at 15c per lb. (100 lbs. or more). Also 60-lb. screw-cap cans of extracted clover honey at \$4.90 per can; 2 cans in 1 box, \$9.60. Safe arrival guaranteed by freight.

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

17tdb

FOR SALE.—10,000 lbs. of choice white-clover honey, in first-quality 1-lb. sections, 24 and 48 lb. cases, delivered free on board cars at Dixon, at 13 cts. per lb. If you want 1000 lbs. or more, write for special prices.

17-18d EZRA BAER, Dixon, Ill.

FOR SALE.—25,000 lbs. choice extracted white-clover honey, in barrels holding about 550 lbs. net, each. I put it up also in packages of any size desired, in either wood or tin. There is no finer honey than this in the market. Write me what you want, and I will give you prices.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

CHOICE ITALIAN QUEENS.

Tested, \$1.25 each; untested, June to Oct., 75 cts.; 3 for \$2.00. Annual price list of nuclei, bees by the pound, and bee-keepers' supplies, free.

11tdb JNO. NEBEL & SON, High Hill, Mo.



Vol. XVII.

SEPT. 15, 1889.

No. 18.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.00; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

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OUT-APIARIES, NO. XV.

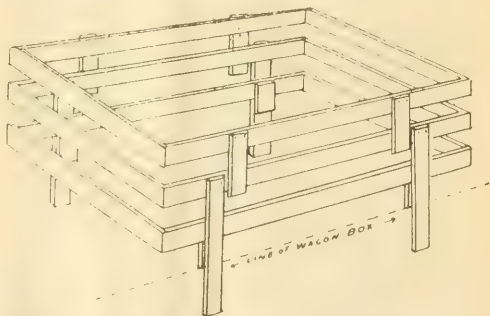
HAULING SECTIONS, ETC.

I AM sorry to say I know very little about what kind of conveyance others use in doing the necessary hauling to and from out-apiaries.

Probably each one uses just what he happens to have, and I should very much like to see a plan of a wagon specially gotten up for bee-keepers. As trips are made almost every day it is a matter of some consequence in what they are made. An easy-riding concern leaves you in better shape for work, and, for this reason, springs are important, even if they were not necessary for sections filled with foundation or honey. It seems to me it would be quite nice to have a cover over the whole wagon, so as to give shade from a hot sun, and protection from the rain. I should hardly like to start with a load of comb honey without some way of keeping it dry in case of a heavy shower. If a shower comes up while you are at work in the apiary it may be more convenient to run to shelter in a covered wagon than into a house or barn. Your wagon should be heavy enough to be sufficiently strong for the loads of honey you hope to haul, and it should be as light as possible, so you can make fast time on the road; for during the season, when every minute is precious, it makes a good bit of difference whether you go along at a smart trot or drag along at a walk.

If running for extracted honey, no preparation is needed for a bulky load; but if you run for comb honey, supers of sections will need more than an ordinary wagon-box to enable you to carry a good load. I say "supers of sections," for I presume your sections will be got ready during the winter or spring, and I use the word *super* in the most general way with its literal meaning, "over," to apply to any arrangement for holding surplus receptacles

placed over the brood-nest. It depends somewhat upon the kind of supers used, as to how you will carry them. If you discover no better way, you can increase the height of your wagon-box by using a modification of the rack that western farmers use for hauling hogs. Mine is made of common six-inch fence-boards; and to save weight, spaces are left between the boards, these spaces being small enough so there is no danger of a super coming through between the boards, and falling out of the load. Looking at the cut you will see that it is a very simple affair.



LIGHT TOP BOXES FOR HAULING SUPERS, ETC.

The two lower frames are held together by cleats nailed on the outside, these cleats continuing down over the outside of the wagon-box, thus holding the rack on. Stops nailed on the inside of the cleats keep the rack from fitting down close on the wagon-box, so that there is the same space between the lower frame and the wagon-box as there is between the two frames. The upper frame is a separate affair set on the lower rack, stops nailed on the inside of the cleats holding it up so as to make the space between it and the lower rack. The reason for hav-

ing the upper part of the rack separate, is that it is easier to put on the first part of the load with the upper rack off. After the lower rack is filled, then set on the upper one and fill it. When hauling the filled supers of honey home, there will be no need of the upper rack. The rack is short enough not to interfere with the wagon-seat.

While talking about hauling sections, I may as well speak of starters dropping out. If you use narrow starters you are not likely to have any trouble. Probably, however, you fill the section with foundation, in which case, unless very securely fastened, the starters may drop out in hauling. I used a Parker fastener, and turned the sections upside down when hauling. It was some trouble, but not so much as to have the starters fall out. Then I got a Clark fastener; and since using that, I haul the sections without inverting, and it is a rare thing for a starter to fall out. The Clark, however, must be used *correctly*, or I wouldn't have it. Simply press the foundation with a kicking motion of the feet, using no sliding motion of the foundation; and if the edge of your foundation is soft enough you will make a very secure job. C. C. MILLER.

Marengo, Ill.

Why, friend M., when you went around to the house-apiaries when I was there, you had a nice easy-riding buggy, with a top to it to keep off the sun. Was that only because I was along? I supposed it was the regular programme. I noticed, however, that you did not carry very many supplies in the buggy. We have quite a variety of top boxes for farm work, but none, perhaps, quite as light as yours. On our big lumber wagon, the front-board is permanently higher than the rest of the box; then to make the box higher we have some very thin light side-boards permanently attached to an end-board. This sits over the edge of the box, and catches fast to the front end-board. The idea of having a top-box in sections, so you can take off a part of it at a time, is a very good one. I suppose bee-keepers with out-apiaries will need something of an assortment of vehicles. Where you make a hurried trip alone by yourself, the common road cart, I should think, would be very nice, for you can make great speed without fatiguing the horse. Next would be a buggy or spring wagon, that would carry, say, 1000 lbs.; but when honey, hives, or bees are to be moved, weighing several tons, then I should think that two horses with a big stout wagon would be the best economy; and perhaps it would pay to have springs. By slow driving, however, one can get along without them. The number of out-apiaries, and the amount of business one does, would probably have to decide somewhat in regard to vehicles, and the number of horses also, for that matter.

NON-SWARMERS.

G. M. DOOLITTLE PROPOSES A PLAN.

BY page 631 of GLEANINGS for the present year, I see that Dr. Miller is still desirous of knowing how to keep bees from swarming, and quotes "Doolittle" quite largely in his article on that page. Doctor, please accept thanks for kind words found on the page above

quoted; and now I wish to lead you and the readers of GLEANINGS out in a new direction along this line of non-swarming, for Doolittle has been experimenting a little more the past summer on this vexatious question—vexatious to those who have all the bees they care for. Why I wish to give my experiment at this time is, so that you can prepare a hive or two the present winter to try the plan, and then with me, next summer, help perfect it to a greater extent than I have been able to do with all my cares. We have all heard of non-swarming hives during the past, yet none of these ever proved capable of doing what their inventors claimed for them, for which reason no one has any faith in a non-swarming hive. Well, I do not claim a non-swarming hive as any part of my plan, but I do claim that hive *preparation* and *manipulation* may yet be made the very item which is to do away with swarming, only as the owner has a desire for swarms. Now, after reading what is to follow, I want every reader of GLEANINGS to set his or her mind to work to see how they can improve on what I have done, hoping that each one may take a different line of thought from mine, or from any other person, and next season work out what they think, when, according to my belief, some of us will have a sure way of keeping all colonies from swarming, even if the plan I tried this year does not work as satisfactorily another year as it has this. What I did was as follows:

Last winter I cut three hives in two, so as to make two half-depth hives of each. I now made half-depth frames to fit these hives, which gave me a frame 5 inches deep and $10\frac{1}{4}$ inches long, inside measure. That your frames should be like mine is not at all important. To cut your hive through the center the up-and-down way, and make the frames to fit the hive, is all that is necessary to try the plan. I made the bee-space at the top of each part, but I do not know but it would work equally well with this space at the bottom. To get the bee-space at the bottom, I nailed $\frac{1}{8}$ strips on the bottom-boards, for the hives to rest upon. When spring arrived I transferred colonies into these hives, using only one part of the hive at first till the bees became strong enough to want the whole hive, when the other half was put underneath that part which the bees had occupied till this time. In other words, these half depth hives were tiered up as soon as they became strong enough to work to advantage in both parts. For this purpose I used the standard Gallup hive, rather than the hive holding only nine frames, which I use the most largely in my apiary, for my object was to get the largest force of bees possible at or just before the time of swarming; and by using the standard Gallup hive I could use 26 half depth frames, in both parts, when all were in the hive.

A little before swarming time, say a week, and as soon as honey began to come in so that the bees were building little bits of new comb, the part of the hive having the most sealed brood in it, or, in other words, that part having the least unsealed brood in, was raised off the other part, being sure that the queen was in the lower part, a queen-excluding honey-board put on, and on top of this a case of sections, while on top of the sections was placed the upper half of the hive which had been taken off. This was done to start the bees in the sections at once, on a plan somewhat similar to D. A. Jones's idea of putting the sections in the middle

of the brood-nest in an ordinary hive. They were now left till the brood in the raised part of the hive was mostly sealed over, when this part was set on a separate stand, after shaking a part of the bees out of it, if it was thought that they would have more bees than would be needed to take care of the brood after the old bees had returned to the old stand; then a queen-cell was given them, as I desired increase this season. If I had not so desired, this part of the plan would be left off, putting both parts above the sections, as about to be described.

Having the bees all in one part of the hive and in the sections, the next thing I did was to bring another half-hive, and, after taking the colony from the stand, this half-hive was set in place of that set off. This half-hive contained frames having starters only in them, said starters being about $\frac{1}{2}$ inch of foundation the whole length of the under side to the top-bar of the frame. The sections and honey-board were now removed from where they were, to the top of this new hive, and the passages down into the sections were closed by putting a sheet of enameled cloth over the top of the whole. The half-hive having the bees and queen was now opened, the queen found, and set out of the hive, when about two-thirds of the bees were shaken in front of the new part; and, lastly, the queen was placed with these shaken-off bees so she would be in the lower part of the hive where new comb was to be built. The part containing the brood and bees which were left to protect it was now set on top of the sections, over the enameled cloth, and the hive closed. These hives were worked inside of the shell of a chaff hive, the chaff being removed. In a day or two, an entrance was opened, which had been previously prepared, at the bottom of each part to the hives, so that the bees in the upper hive had to run down the sides of the section case and lower hive when they wished to get out, going in at the bottom of the lower hive, and out at the entrance. After having their playspell they would stay in the lower hive and in the sections, so that, when all had hatched, the upper set of combs was free from both honey and bees, when they were taken off and stored away for another season. Young bees enough seemed to remain to hatch the brood, while they went down into the lower hive just right to keep the colony at its strongest point all the while storing honey. The sections were tiered up as needed, or removed, and the bees seemed to think that they had swarmed, or at least they appeared to so think, after they were shaken into the empty part below. If an empty shell is not used, I would leave one corner of the enameled cloth turned back a little for the bees to pass through the sections down below; but in this case probably the bees might store a little honey in the empty combs after the brood had hatched. This has worked well this season, a season when not many swarms have issued, and I believe it will work in any season, giving us no swarms and lots of honey. I have time only to briefly outline it, but trust it will be sufficiently plain so that all can understand what the plan is, and help to perfect it still further.

G. M. DOOLITTLE.

Borodino, N. Y., Sept. 3, 1889.

I should expect the above plan to work, unless the bees had gotten the swarming mania before it was started. I am afraid, in such a case, they would swarm in spite of us. The objections to the plan are, that it

is a little complicated, and fully as much work, if I understand it correctly, as making an artificial swarm. Would not the final result be something like the plan so often given, of hiving the new swarm, and setting it on top of an old one, then in a few days destroying the queen-cells below and shaking the bees and queen in front of the lower one? In the above case the bees would probably conclude that they had swarmed, and therefore give it up until circumstances or the honey-yield should get them into condition to swarm again.

ARTIFICIAL INCREASE VERSUS BUYING BEES.

HENRY LARGE'S EXPERIENCE REVIEWED.

If no one else has criticised H. Large's experiment, page 618, Aug. 1, permit me to say, while it is worthy of notice as to the amount of increase possible, and also the amount of sugar necessary to expend to obtain that result, the balance-sheet itself is incomplete, and, to beginners, misleading. From the dates given in the article, I beg to submit an approximate balance-sheet, leaving out the question of time and labor, which, for the five months, could not have been obtained for less than \$50. And another point is not made quite clear, whether they were full colonies sold, or only three-frame nuclei—see page 618, right-hand column, 4th and 5th line. If the latter, then bee-keeping might be profitable.

	Dr.		Cr.
1 stock on hand ..	\$ 6 00	22-stocks at \$5.00 ..	\$110 00
44 hives at \$1.20	52 80	5-stocks at \$6.00	30 00
20 queens at \$1.00	20 00	18-stocks at \$5.00	90 00
Sugar	70 00	Sugar	2 00
400 sheets of foundation, say 50 lbs. at \$2.	21 00		
To balance	62 20		
	\$232 00		\$232 00

You will see that I beg to differ with you in charging the 20 queens. They should be charged, even if Mr. Large had them given to him; and hives also have to be charged, and also foundation, as per his letter.

Now, is the game worth the candle? I can buy colonies in February and March right here, and I have no doubt most bee-keepers can elsewhere, at from \$2.00 to \$3.00 per colony, and the cost of building up friend Large's 45 was \$1.75 each, exclusive of labor, hives, and foundation.

H. FITZ HART.
Avery, La., Aug. 25, 1889.

NEW METHODS OF QUEEN-REARING.

ZINC-EXCLUDERS, ETC.

An interesting question now before our leading apiarists is, Can young queens be fertilized from a hive where there is a laying queen in the brood-chamber, the queens being excluded from the brood-chamber and each other, and given separate entrances?

This matter has been considered in the *American Bee Journal*, see page 26, Vol. XXV., where a negative view is taken. That view is still held. While it may occasionally occur, as in a great honey-flow, or where there is a failing queen, still it is an exception to a great law in the nature of the honey-bee; and that law is, that, so long as a vigorous queen occupies the brood-chamber, she reigns practically supreme as regards all rivals. But if for any cause she deserts the brood-chamber for

another and remote part of the hive, and begins laying; or if she leads out a swarm, the conditions for queen-rearing are essentially changed. The bees of that brood-chamber will then start queen-cells, and, with proper mechanism, the bee-keeper may get every one of them hatched, fertilized, and laying, all in the same hive; at the same time, the bees have access to all of the queens.

Thus we may rear and get young queens fertilized from a hive while the mother-queen is actively depositing eggs in the same hive; but it is imperative that her operations be transferred to a part of the hive remote from the brood-chamber.

In storifying a lot of brood-chambers containing combs of honey upon a colony (without excluders to prevent the queens going up), I found shortly after that she had gone up to the third story, and the bees below in the first story had started queen-cells. The queen was laying vigorously, and her attending bees were flying from the first story and the only entrance.

This liability of the queen to leave the brood-nest will account for the probable fact that colonies of bees in caverns and other places in a wild state have many laying queens, although all of the bees are seen to issue from a common entrance. In no other way can we account for the large numbers of bees seen to fly from some of these wild colonies. In the instance above noted, of the queen deserting the brood-nest, I put her back in the first story; put on an excluder, and then the seven other brood-chambers I had on this hive. The bees then balled and killed the mother-queen, and raised a queen above and below the excluder.

In two other cases, where I had put swarms containing the mother-queen above the sections, the bees reared young queens below while the mother was laying above. So in this case, where the mother-queen had gone up to the third story, if I had left her there she would not have been disturbed, and there would have been two laying queens in a short time. But I have yet to record a single instance among many cases I have had in the last three years, of a young queen becoming fertilized from an upper story above an excluder, where there was a laying queen in the brood-chamber.

One of the many plans of using the new queen-rearing chamber is to take the old queen from a hive and put her in an upper story, above an excluder, or, wait till she leads a swarm, and hive in the usual manner; then place all above the excluder. Before the queen-cells are ready to hatch, set the combs over the new chambers, so that there will be one cell to each of the compartments, and all of the young queens that hatch will become fertilized, and begin laying in due time.

The many and highly successful uses to which queen-excluding zinc may be put, hails the advent of great changes in our methods and fixtures. My prediction on page 88 of GLEANINGS, Vol. XVI., see the three closing paragraphs, will speedily come to pass, and other much-needed changes with it, not the least of which will be the sacrifice of the present largely used Langstroth brood-frame for one of a smaller size, or one about 7 x 17 inches. The new conditions and requirements brought about will compel these changes, which are destined to place bee-keeping upon a more successful and profitable basis. It will be soon made to appear, if it is not already apparent, that bee-keeping, as a pursuit apart from other business, is not a

profitable one (barring a few exceptions in favored localities), with our old methods and fixtures for handling bees. The new system, with its larger returns and financial success, will work its own way to popular favor.

G. L. TINKER.

New Philadelphia, O., July 27, 1889.

I proved by some expensive experiments years ago that queens can be hatched and fertilized in a colony having a laying queen; but said colony required a degree of watching and manipulation that made it out of the question to raise queens at a profit. If we could develop a strain of bees where young queens would be raised continually, while their mother kept on laying eggs, then we should have what we want.

THE HONEY CROP OF VENTURA CO., CAL., AND VICINITY.

FRIEND MERCER GIVES US THE FIGURES.

IF your correspondent from Los Angeles Co. still thinks we shall have a fair crop of honey, I think he had better dust around among the bee-keepers and learn what is going on; for there is less than one-fourth of a crop in all of the southern part of the State. The crop has mostly been sold for about 6 cts. per lb. The comb honey crop was nearly an entire failure. There was only about 3 tons produced in Ventura Co.

NAMES AND POSTOFFICE ADDRESS OF BEE-KEEPERS.	Honey, Tons.	No. of Hives in Spring.	Increase.
T. Barrows, Nordhoff	3 1/2	75	
G. E. Stewart, Nordhoff	3	150	
S. C. Gridley, Nordhoff	5	280	
A. Vancusen, Nordhoff	1 1/4	70	
George Bay, Nordhoff	4 1/2	150	
J. H. Ireland, Nordhoff	3 1/2	240	
J. W. Denison, Nordhoff	2	80	
J. H. Cooper, Nordhoff	3	67	
P. W. Sopher, Nordhoff	2	90	
J. J. Kapp, Ventura	10 1/2	2 1/2	
Robert Lyons, Ventura	4	65	
S. G. Wilks, Ventura	8	2 1/2	
Mr. Sheldon, Ventura	4	180	
R. Wilkin, Ventura	2 1/2	275	80
M. H. Mendelson, Ventura	5	225	90
George Reynolds, Ventura	2	200	
Bewis Walker, Ventura	6 1/2	400	
J. McFarlan, Ventura	1	35	
John Fox, Ventura	4	400	
L. E. Mercer & Sons, Ventura	16	100	250
J. M. Brooks, Ventura	4 1/2	194	
Mr. Quessel, Ventura	10	300	50
C. Healey, Ventura	3	180	50
Mr. Twining, Ventura	1 1/2	80	
Mr. Lowery, Santa Barbara	5	400	
Mrs. W. D. Alexander, Santa Paula	7 1/2	325	
Mr. Bassett, Santa Paula	1	75	
J. Lager, Santa Paula	1	100	
C. E. Hoar, Simi	3	120	
Woods Earley, Simi	6	500	
F. Camichel, Simi	1	20	
W. G. Richardson, Simi	2	1500	
C. M. Drake, Springville	4	160	
S. Stewart, Hueneume	12	350	40
S. Fox, Hueneume	5	160	
S. Malden, Hueneume	5	170	
J. M. Stewart, Hueneume	2	150	
F. Oliver, Hueneume	3 1/2	170	
M. E. Butts, Hueneume	2	160	
Savers & Davenport, Hueneume	1 1/2	20	
J. F. McIntyre, Fillmore	10 1/2	420	150
J. Jepson, Fillmore	2	75	
Thos. Arnold, Fillmore	11	600	65
S. Kinney, Fillmore	5 1/2	150	
Josiah Keene, Fillmore	2	60	
R. Strathern, Fillmore	7 1/2	500	
Robert Dean, Piru City	2	80	
Mr. McMill, Piru City	1 1/2	80	
J. A. Canaway, Piru City	6	210	
T. Whittaker, Piru City	4	250	
W. Whittaker, Piru City	3 1/2	300	
G. Stockton, Piru City	2 1/2	125	
H. D. Danton, Piru City	2 1/2	200	
H. D. Danton, Piru City	2 1/2	150	
John Holzer, Piru City	2	111	
B. Reasoner, Piru City	1	100	
O. P. Reasoner, Piru City	3	100	
W. G. Lecher, Piru City	3 1/2	27 1/2	

San Buena Ventura, Cal.

L. E. MERCER.

THE REESE BEE-ESCAPE.

AN EXCEEDINGLY IMPORTANT INVENTION.

IN my work in the apiary this summer there is nothing I have used with greater satisfaction than the Reese bee-escape. This was illustrated in GLEANINGS somewhat over a year ago, I believe, but since then so little has been said of it that it does not seem to have come into general use. With me it has proved not only a labor-saver, but has largely done away with one of the most unpleasant operations of the apiary. The usual way of ridding extracting combs of bees is to remove the combs separately, shake the bees off as much as possible, and then brush off those remaining.

With many bee-keepers, comb honey is handled in about the same way, except that things are often made worse by handling each section separately. This shaking and brushing bees from the combs is a tedious, wearisome, dauby, and exasperating task. The nice comb honey is uncapped by the bees while the operation is going on; irritated bees take revenge on the operator, and often robbing is the natural result of the exposure of honey. All supers, whether for comb or extracted honey, should be of such construction and size as to be readily handled as a whole. Any form of super that must be taken to pieces to remove the honey from the hive is defective. With properly constructed supers the removal of honey by means of the bee-escape is an easy matter. The finished super is removed, a bee-escape placed on the hive, and the super and cover replaced, alarming the bees scarcely at all, requiring the use of but little smoke, and allowing almost no chance for robbers. In a short time the bees will have quietly passed below, and the honey may be removed. Usually I put the bee-escapes on in the forenoon, and remove the honey late in the afternoon, or put them on in the evening, and leave them over night. Very often less time will answer, but usually it is well to allow six or eight hours for the bees to get out. When sufficient time can be allowed they are just the thing for an out-apiary.

I use single cones, making them two inches in diameter, and the same in depth. A form for making them is easily made from wood. Sometimes the bees cluster on the cones in such numbers that some find their way back; but this does not often happen. To prevent the possibility of leaving the escape on so long that combs will be built in it, it should be painted some color strongly contrasting with that of the hive.

Those who use hives with a double brood-chamber can use the bee-escape to very good advantage in preparing their bees for winter. Wait until all brood has hatched, then remove the lower story, and run the bees out of it through a bee-escape. The upper story contains most of the honey, the lower story nearly all of the pollen, and your bees are thus contracted for winter in the best possible shape, and without handling a frame, and with very little contact with the bees at a season when manipulation is particularly difficult.

Dayton, Ill., Aug. 27, 1889.

J. A. GREEN.

You certainly have succeeded in making the bee-escape a great labor-saving implement; and as I read over what you have to say, I felt ashamed to think that this had not been brought out so prominently before.

As an illustration: In our experiments with the house-apiary we came to a point where we decided that, if some method besides shaking and brushing could be devised to get the bees off the combs and sections, it would be a success. But we decided then that it could not be done; and unless you have tested the matter thoroughly, I am inclined to think that the bees will, many times, stick to their combs day after day (especially if the combs contain a little brood). The only way in which we succeeded in getting them to leave entirely has been to wait for cool weather, and sometimes even then they would stick to the supers until they became too stiff to move. Your idea of having the escape painted some different color from the body of the hive is a bright thought. A great many times, very annoying omissions can be prevented by simply having tools or implements painted with contrasting colors. You know we have our covers for sap-pails red on one side and white on the other, so as to tell when a pail has been filled. You will remember that I mentioned that Dr. Miller piled his honey up in tall piles, in order to get most of the bees to leave of their own accord before he came to finally getting them out.

AMONG THE BEE-KEEPERS OF VERMONT.

POINTS OF THE JOURNEY SUMMED UP.

AFTER a Sunday in Rutland, spent both pleasantly and profitably, we went to Bradford, where lives Mr. Hilos Davis, a bee-keeper and hive manufacturer. This place is east of the picturesque Green Mountains, between White River Junction and Wells River, and near the New Hampshire and Vermont line. The location is not equal to the region across the mountain, for honey production. As Mr. Davis was obliged to leave his business on account of failing health, he came here in 1878, and began bee-keeping. He commenced in the spring, with 278 colonies, and then had 310 in three yards three or four miles apart. In the home yard, situated on quite a steep hillside, were 96 colonies. These are cared for by a young lady member of his family, Miss Lucy Crehose, who is enthusiastic in the work. At the factory, three miles away, where Mr. Davis owns a nice little water-power, are 150 colonies which he looks after. Mr. Davis was a designer and inventor, and was with one firm in North Andover, Mass., in this capacity ten years. His factory here was burned a few years ago, and he lost not only much stock and valuable machinery, but a large number of the finest tools which can not be replaced, having been made and collected during his former occupation. The present factory is well fitted with improved machinery, adapted to making hives, sections, crates, etc. He is a skilled workman in wood as well as iron, and the goods turned out are well and accurately made. He has made a number of different hives, and experimented on and invented various fixtures. His present hive is very ingenious, with many good points; but in our opinion it has so many complicated and accurately fitted parts that the labor required to manipulate it would be a great objection in a large apiary. He

uses eight Langstroth hanging frames, which are held at fixed distances by projecting pieces at each end of the brood-chamber. The surplus case consists of section-holders with a double wood separator fastened on one side. These are held together by a wooden frame; the side or end boards are wedge-shaped, and the frame is crowded up tightly about them. The double separator is his invention, and has become favorably known to quite a number of bee keepers. It is claimed for it, that, as bees can go through these passages they do not walk over the combs as much, and it saves their being stained, and also gives freest access to the cases above. The same crate is used as a feeder, shallow troughs taking the place of the rows of sections, while the bees enter through the passages between these separators. In winter, the brood-chamber is turned on end, making the shallow frames into deep ones. An outer case, similar to Manum's, is used, and packing is placed beneath as well as around. The fresh air passes up between the case and an inner partition, and enters the brood-chamber near the top, when, he claims, it falls to the bottom and forces out the foul air through the porous cloth at the top, and all condensation of moisture is prevented; there is also no draft on the cluster.

He has invented and is testing an ingenious automatic swarming arrangement. It consists of a brood-chamber, containing combs with wire cloth on one side. It is set on end on a shelf or bracket on the front of the hive. A passage leads to it from the entrance, and the outer entrance is covered with queen-excluding zinc. When the swarm attempts to leave, the queen can not go through the zinc, and either finds her way to the catcher, or returns to the hive. If the apiarist is on hand as soon as they begin to issue, he shuts the lower entrance entirely; and the swarm, led by the light, pours up into the catcher. When clustered, the brood-chambers are changed, the new one put inside the hive, and the cases of sections from the old one are given them, and the work goes on. The old swarm is left then until united or given a permanent stand. His experience with queen-excluding zinc is, that the Jones and Falconer zinc does not hold the queen every time. Last season the third apiary was in charge of Mr. Davis' daughter, a bright child of eleven years. She managed every thing, with the help of a man near by, who would lift clamps of honey, or do any heavy work when called upon. In going to the yard she walked a quarter of a mile to the station, took the train to the next station, walked two miles to the apiary, and when the day was over she walked the whole distance home. Sometimes she had a chance to ride home with her father, who came to see how she was getting along. The past two seasons have been very poor with him, and Mr. Davis is "living in hopes" of something better soon. In 1885 his best hive gave him 197 lbs. of comb honey, and did not swarm. When he has a good crop he takes a lot by freight to the different cities and sells it himself. Sometimes he takes a wagonload to the nearest large places.

After a short stay here, owing to our limited time, we took leave of the family in which was such a promising young bee-mistress, and were driven to the station by Mr. Davis, when, after thanking him for the pains he had taken for us, we took the train and were safely delivered in Pawtucket that evening.

In summing up our trip we have learned so much that is both new and valuable to us that we are at a loss to mention the most important helps; but we would say we admired the tireless energy and practical ability possessed by Mr. Manum, as shown in the simplicity and completeness of the hive used, and in the systematic arrangement and management of his extensive apiaries.

At Mr. Crane's we saw the section-crate that won us (also used by Holmes and Larrabee and others), and noticed that he was able to get along with less help during the season than the others who allowed their bees to swarm; and we decided to try removing queens from part of our colonies the coming season. Manum and Crane fasten a hook to the bellows of their smokers, which is hooked over the edge of the hive and holds it convenient for use, or so that smoke from it may blow across the open hive.

At Mrs. Wolcott's was the best honey and work shop for 150 colonies we have ever seen, and the most attractive cases of comb honey ready for market, the credit for which is due to Mr. Holmes, we believe. At Mr. Holmes' home yard was the finest finished as well as the cleanest prepared sections of comb honey we have ever seen. His bees are blacks, with a few hybrids.

All the parties visited used the four-piece dove-tailed section, made of white poplar, glued at the corners when put together. This is what we have used for several years, and we should like to see any thing stronger, whiter, or squarer. We have driven them together with a block of wood, after touching the corners in white glue, and then put them in the angle of a carpenter's square to leave them true. There they use various machines for putting them together. Mr. Manum used to make and sell a lightning gluer, which was attached to a horse, similar to a harness-maker's, but it is now used somewhat changed, and is attached to his work-bench. Nearly all in Addison County have made something on the same principle, and "which does the work."

Mr. Isham, one of Mr. Manum's apiarists, has an attachment for his machine, with which foundation is mashed into sections with ease and incredible rapidity. These machines we think should be more generally used.

Mr. Forbes picked up a wagon-spring, cut off part of one end, fastened a square piece to this thick end, and bolted the thin end to a block fastened to his bench, then attached a treadle to pull it down with, put in a stop beneath, to prevent it coming too far, and I don't see but he has the simplest and cheapest arrangement of all.

Larrabee, Holmes, Hall, Forbes, and others, have the Barnes improved foot-power saw, and make all their hives, crates, and shipping-cases with it. Outdoor wintering is practiced almost exclusively in the region, though Mr. Crane has lately started the practice of wintering in the cellar.

If any one should have secured any help from ideas given in these articles, we are glad; but these bee-keepers deserve the credit of it, and we would advise all who can to take the trip themselves, for very likely they will be better able than we were to improve the opportunity. SAMUEL CUSHMAN.

Pawtucket, R. I.

Friend C., we are glad to get reports from any bee-keeper who manages to have his sons and daughters assist him; and your

account of the way in which a daughter eleven years old managed an apiary is really wonderful. I presume that, of course, friend Davis will watch carefully to see that the child is not overtaxed, either mentally or physically. She is just the age of our daughter Caddie; and while we were talking it over at the breakfast-table, Caddie thought it was a pretty big undertaking. As a rule, where children do show special gifts in such matters, they ought to be allowed to have vacations quite often, and of pretty good length. Any little girl who loves her father, and who also loves bees, can oftentimes do surprising things in this line. It reminds us of the story of Katie Grimm, and the wonderful feats she performed in the way of extracting honey in one of her father's out-apiaries. Some of the younger ones might very naturally want to know how big pay Miss Davis received for her share of the work. The accounts of your visits have been very interesting indeed.

CUBA AND ITS HONEY RESOURCES.

THE NATIVE CUBAN APIARIES AND HIVES.

A NATIVE Cuban apiary usually consists of from 50 to several hundred log gums, each 10 to 18 inches in diameter, and 5 to 6 feet long, lying flat on the ground or on poles, in rows about 2 feet apart, and open at both ends, from which the combs often protrude a foot or more. The shell of these palm logs being very thin, dry, and free of limbs or knots, is easily and quickly split open in transferring. The tools used in this operation consist of a smoker, long-handled ax, whisk-broom, and a long iron rod with a handle at one end, and flattened at the other into a broad gouge, sharp and circular in shape, to conform to the inside surface of the gums. Two blows with the ax, directed between two long rows of combs, usually suffice to divide the hive into halves. We now remove with knives all the large and heavy combs of honey and brood, and, after jarring off the bees, finish up with the long gouge, leaving the shell as smooth and clean as though the bees had never occupied it. When the day's transferring is done, all the brood-combs are gathered into one place at the entrance to the hive of a strong stock; here it is carefully arranged into a long pile, and covered with palm bark and coffee-sacks. We now close the other end of the strong stock, and thus compel the bees to pass through this pile of brood in leaving and returning to their hive. In a couple of weeks the brood is all hatched, and we have millions of bees to use when needed, besides plenty of old combs to turn into foundation, which, by the way, I prefer to any very old combs, no matter how straight and nice they may appear. In this manner we have, with an assistant, transferred an apiary of 86 gums into our hives in 4½ days, which, when we consider that the gums will average in their contents twice as much as the old box hives of this country, must be regarded as rapid work. The honey-flows at this time of the year, January and February, are so plentiful and constant that no trouble is experienced from robbing.

THE TWO MAIN SOURCES OF HONEY.

While most of the trees, shrubs, and plants, bloom

profusely, and the larger part furnish honey, yet the apiarist in this part of the island relies for his large crop of surplus mainly on two sources—campana, or bellflower, and the campeachy (logwood). The former is a vine, much resembling our morning-glory, and blooms profusely from December till in February. It is considered a perfect pest by the Cuban farmer, as it grows almost everywhere, and is difficult to kill out. The latter is a beautiful wide-branching tree with a most peculiar body, often nearly square instead of round, like an ordinary tree. It blooms three times during the year; and each time, for the space of about two weeks, it affords large quantities of rich golden nectar, in quality and color much like the honey from the pumpkin-bloom. When in bloom the hum of the bees among its branches can be heard quite a distance, and reminds one of the basswood forests in this country, except the large tresses of flowers, which are yellow instead of white.

NO WINTER PROBLEM TO CONTENT WITH.

Here in the North the great problem of safely wintering and "springing" the bees occupies the thoughts of our apiarists, while in Cuba the problem is, "how to have our hives overflowing with bees at the commencement of the great honey-flows," commencing in December. August, September, and a portion of October, are probably the worst months in the year for the Cuban bee-keeper. There are flowers in bloom, but they do not seem to afford much honey. The Italian queens diminish wonderfully in their laying capacity, and the blacks to a less extent. To solve as nearly as possible this problem we use hybrid queens; and as our hives are large we place a close-fitting division-board in the center, and as good and prolific a queen as we can find in each part, adjusting the entrance so the bees will not mingle on the alighting-board. We now give them a very little *thin* feed each evening, continuing till near November, when we remove one queen, take out the division-boards, and place all the brood in the lower stories of the hives; and as honey is now coming in moderately, feeding is discontinued; and by December we have, say, on an average, from 60,000 to 80,000 bees to each hive, and this means an average, at least, of from 350 to 500 lbs. of honey. I know of one large hive containing a Syrian queen, which gave an average of 600 lbs. of honey for three successive seasons. I will now give our method of wiring foundation.

ANOTHER PLAN OF WIRING FRAMES.

Punch two holes in the *side-bars* of the frame, equally distant from the top and bottom. Place a small tack on the outside of one side-bar, near each hole. Now, facing your work-bench, with frame in left hand and wire reel fastened to the bench on your right, insert the wire in the upper hole, across the frame, parallel with the top-bar, through the upper hole on the left side, then back through the lower holes. Now securely fasten the wire to the upper tack, and pull the lower wire very tight, and fasten to the lower tack; clip them off and drive home the tacks, and you are ready to insert the foundation, which should have a play of not over $\frac{1}{16}$ inch from side to side. Tack a board on your bench, which fits the inside of your frame, and of half its thickness. Place the sheet of foundation on this board and bring the frame down over it so that the wires rest tightly against the foundation. Now with a small awl, with groove in the point to ride the wires, imbed them in the foundation; and if the

work is properly done, no sagging or breaking of combs will occur in extracting. I have thoroughly tested this method, and believe it superior to any other; besides, it is inexpensive, simple, and speedy.

Of course, there are some "drawbacks" to Americans carrying on business in Cuba, but they are not so serious as many suppose, and these we may notice in some future number. A. J. KING.

New York, Aug., 1889.

Well, I declare, old friend, you have really worked up almost a system of bee culture specially for Cuba. Your plan of placing all the brood in front of a strong colony, so as to have a regular storehouse of young bees from which to draw them, by the pint, quart, or bushel, is a new idea, at least to me. By this means we get all the brood, and get rid of transferring old combs into frames that would be only a detriment. I think if I should do any transferring I would adopt a similar plan; viz., save all the bees, but melt up every square inch of comb from the old hive. Your plan of wiring frames, I presume, applies particularly to the American frame, about a foot square. For this frame it will no doubt answer nicely. With the Langstroth frames, two diagonal wires work very well in a similar way. We should be very glad indeed to receive further reports.

COAL OIL AND SULPHUR NO REMEDY FOR FOUL BROOD.

SOMETHING FROM OUR OLD FRIEND JOHN G. COREY, OF SMOKER FAME.

IN a late issue of GLEANINGS, I see that Bro. Mercer, our foul-brood inspector, has gone back ten years and is now actually going over the same ground that some of our old Ventura County bee-keepers did during our foul-brood panic, commencing in 1877.

I am sorry this old coal-oil and sulphur remedy has been revived, and doubly so because it re-appeared in this county, where we, like a band of brothers, united in reading up on the subject, and finally united, and, I can safely say, stamped it out of existence among the progressive bee-keepers of this county. 'Tis true, we had *bee-owners* who would experiment with coal-oil and sulphur, the same as the celebrated African "medico," who prescribed "rosom and shot" for a broken leg, and foul brood stuck to them like a brother as long as they owned a single colony of bees. But our wide-awake bee-keepers accepted the well-established theory that the disease existed in the *honey*; and that, as long as there was a drop of that diseased honey in a hive, foul brood was liable to re-appear whenever that drop of honey was used to feed brood; and as Bro. Mercer is our inspector, we feel a pride in having him both practice and teach the true and accepted theory, namely, that foul brood is a fungoid disease, and exists in the honey; that the diseased, dead, and putrid brood is only the effect; that to cure the disease we must remove the cause. Still, I am willing to hear Bro. Mercer defend his coal-oil and sulphur remedy, but I can not feel otherwise than that any such nonsense is misleading, and eventually works a great wrong. When beginners in bee culture read the discussions on this disease, and examine the best authorities

on the subject, and afterward find a large bee-keeper advocating so simple a remedy as Bro. Mercer proposes, he is liable to say, "What a set of old fools those old bee-keepers were, to make so much ado about such a trivial affair as foul brood!"

I can tell Bros. Mercer and McIntyre how to make a queen-excluder for one-third of a cent, if it would not be considered too cheap, and be an injury to the perforated-zinc trade.

JNO. G. COREY.

Santa Paula, Cal., Aug. 13, 1889.

Friend Corey marked the following "private;" but as it contains the good news that he is about to enter into our ranks again, he will excuse us for using it.

P. S.—Bees came and entered some of my old cast-away hives on my lot. I have cared for them, and imported some queens, and am preparing to go back into bee-keeping this winter. I have been lonesome since I sold my apiaries, and I can't live without bees. J. G. C.

Perhaps I should explain to our readers, that friend Corey is the one who first gave us the idea of the cold-blast smoker. I had quite a visit with him while in California, and he explained to me that, as his life has been mostly spent with machinery, making him necessarily conversant with the principles of steam, air, and liquids, it was no very great invention for him to suggest making the smoker on the injector principle—at least he so states it. But we can thank him none the less. He is a man well informed, and well calculated to detect and throw out any so-called false science. If he uses a remedy or any thing at all for foul brood, it would have to have the stamp of common sense on it before it could pass him. I entirely agree with him in regard to the coal oil and sulphur—that is, I can not see by any process of reasoning how it should be an antidote against foul brood.

WHAT IS AN AVERAGE CROP OF HONEY, COMB AND EXTRACTED?

E. FRANCE BRINGS UP A PERTINENT QUESTION.

IN answers to the third question in the statistical report in Aug. 15th GLEANINGS, for the present year, there appears to be a big difference in opinion as to the amount of a full crop of honey. We base our calculations on a full crop of extracted honey as 100 lbs. per colony, spring count; and for comb honey, 50 lbs. per colony. This year we got about 50 lbs. average, which we call half a crop. My report for this vicinity was 75 per cent; but my neighbors got more honey per colony than I did. Mr. Freeborn, of Ithaca, Wis., gives 100 per cent; his crop 32,000 lbs. from 300 colonies, an average of 107 lbs. per colony, besides 200 lbs. of comb honey. Mr. F. McNay, of Mauston, Wis., gives in his report 100 per cent; his crop 20,000 lbs. from 350 colonies. His average was a trifle over 57 lbs.; but still he reports 100 per cent. See the difference in opinion about per cent. McNay must think he got a full crop, while Freeborn doesn't appear to think he got over a full crop. Mr. J. L. Clarke, of Florida, reports nearly 5000 lbs. from 68 colonies, an average per colony of 73½ lbs., and he reports 200 per cent. Mr. C. Dadant, of Illinois, reports 35,000 lbs. from 400 colonies, 87½ lbs.

average per colony, and he reports 150 per cent. Mr. James Heddon, of Michigan, reports 2000 lbs. of honey from 200 colonies, an average of 10 lbs. per colony, and he calls it 25 per cent. Mr. R. L. Taylor, of Michigan, reports 4000 lbs. of comb from 400 colonies, and he says 25 per cent. Mrs. L. Harrison reports 2000 lbs. from 75 colonies, an average per colony of 26 $\frac{2}{3}$ lbs., yet she says 100 per cent. Mr. W. P. W. Duke, of Alabama, reports 3000 lbs. of comb from 40 colonies, an average of 75 lbs. per colony, yet he says 200 per cent. Mr. Chas. F. Muth, of Ohio, reports 800 lbs. from 28 colonies. He says his per cent is perhaps 75, and his average is about 28 lbs.

Now, friends, it is amusing to look over the reports and note the difference in the per cent reported. The most of these that I have quoted are prominent bee-keepers and writers on bees and honey. But just see the difference of per cent quoted on the amount of honey taken. What does this "per cent" business amount to? If we had

them. Perhaps the reporter has done better than those about him, or the case may be just the reverse. I believe, however, that the parties you mention generally do a little better than others in their vicinity, for they are leading bee-men.

PRATT'S QUEEN-REARING APIARY.

CARNIOLANS, ETC.

THE engraving herewith shows the northeast corner of what is known as the "Pratt Bee Farm," of Marlboro, Mass. This apiary is wholly made up of the Carniolan race of bees, and is run for queen-rearing exclusively. It is located in the center of a city of 13,500 population. A small brook is in the background. The large hives in the foreground are stock hives, of the Cary type. The first three or four rows contain imported queens, and they are constantly



PRATT'S QUEEN-REARING APIARY.

nothing but the per cent report for a guide, our conclusions as to the amount of honey taken would be as wide as the rate of per cent quoted. But fortunately we have the pounds of honey taken and the number of colonies, and that is valuable.

Now, friends, can we not settle on some amount of honey, both for extracted and comb, so that we all may know just what is meant by a full crop of honey? We often read about a crop, half a crop, one fourth crop, etc. Let us call a full crop of extracted, 100 lbs.; comb, 50 lbs.; then every pound of extracted is one per cent, and of comb honey two per cent. We ought to have a standard.

Platteville, Wis., Aug. 28, 1889. E. FRANCE.

Many thanks, friend France, for calling us all to order in this matter. I would, however, suggest that possibly the friends, in mentioning the per cent, have in mind the general product in the vicinity around

drawn upon for brood to strengthen nuclei, etc., which keeps them from swarming.

Those hives just to the left of the operator contain the finest breeding queens procurable. These bees will submit to rougher usage without anger, and will endure the severest weather with less risk, than any other bees that we are familiar with.

In the distance, among the grass, are shown a few of the nuclei hives—one hundred in all.

These hives all take the Cary frame, with ten to the large and from three to five to the nuclei.

The operator is your humble servant. He is just opening an imported-stock hive, without the use of smoke, during a clover harvest.

During this season, 1889, not a single queen has been lost at mating time, out of the hundreds reared. This is on account of vigor of the young Carniolan queens, keeping all nursery hives a good distance apart, and allowing the grass to grow up

about them. All the breeding is done from very fine home-bred queens, and mated with the finest drones from tested imported stock. We are firm believers in breeding from the best drones as well as from the best queens. E. L. PRATT.

Marlboro, Mass.

Perhaps our readers may not all recognize friend Pratt as the editor of the *Queen-Breeder's Journal*. The picture seems to indicate that his apiary is a very pleasant place, and one would hardly think, from the view of the shrubbery, that it is in a city of 13,500 inhabitants. The descriptive letter above sounds pretty strong for the Carniolans, as well as for the skill of the proprietor; but it may be well, perhaps, to bear in mind that friend Pratt is an enthusiast in the matter of queen-rearing. He has certainly gone beyond anything within the scope of our experience if he has raised hundreds of queens without losing one during mating time. As we are told that the *Queen-Breeder's Journal* has been recently sold to another bee-paper, we infer that the business of queen-rearing was too arduous and exacting to admit of conducting a periodical in regard to the subject at the same time.

JOTTINGS BY AMATEUR EXPERT.

THE TEMPER OF CARNIOLAN BEES.

IN a recent issue of GLEANINGS, Ernest remarked that a stock of Carniolan bees placed in the care of a Mr. Harrington were not more docile than Italians. I should like to say, that plenty of them are not so; but on the whole they are a far more amiable race, although they can sting if need be, and are good at defending their homes. They need very little smoke, and do not rush about on the tops of the frames during manipulation. They are very still if you handle them carefully, and they do not rush into balls, especially at the lower corners of the frames, as some bees do. On the other hand, they never seem to gorge so excessively as many bees, which makes it difficult to change them from one hive to another, or run them in at the entrance, as one sometimes wishes to when uniting or adding to a stock. But all this is running away from "temper."

The question I wish to broach is this: If I get a queen from a dealer who warrants her as from a quiet strain, why are her progeny more or less savage? I suggest, chiefly two reasons: 1. Because, probably, she has been reared from the egg by savage nurse bees; or, 2. After you get her you probably introduce her to a stock of very cross wretches, because you hope to improve their tempers. I believe there is a little in the first reason, but there is far more in the second. We know the effect of a foster mother on a child. True, children bred on goats' milk do not butt; and if on asses' milk they do not work their ears backward and forward when they talk, although they may do many characteristic things when they grow up; but many a weakly child from a weakly parent has grown into a finely developed adult through being brought up by a physically strong foster mother, and has inherited many of the physical and moral characteristics of the parents and family who has nurtured them in childhood, instead of those of its natural parent. I beg that lady's pardon, but I mention her name to draw

her out of her silence. What has Mrs. Chaddock to say to this? Well, if this is true of men, and how much more true of animals, why not bees, who have such control over the future of a bee through the quality of the milk given it when young? So much for theory. Now for a fact or two:

I have a friend who is a very enterprising bee-keeper; he is one of the first to get hold of every new race; he makes his bees pay him well; he has had every conceivable kind known; and the consequence is, he has an apiary full of hybrids, and, to use his own expression, they are all "naughty." He has had Carniolans, and from several dealers too; but even his Carniolans are the most savage I ever met with. He has introduced his queens to savage hybrid stocks to cure their tempers, but only to find the young Carniolans are only a shade "less naughty" than his young hybrids.

Another bee-keeper, who sells bees with Carniolan queens introduced, always finds the first batch of Carniolan brood is not nearly so amiable as those following later, and he confessed to me it has been a great drawback to him. On one occasion I lent an old tough-combed stock, in a straw skep, for manipulation at a bee-show, in a tent, and a very noted bee-keeper complained of their bad temper, killed the queen, and gave me a nice young queen from a very quiet race, and I was disappointed to find her progeny were not much improved on those of her predecessor in the way of stings, but that same old stock afterward got to be as quiet as any, and I took it to many shows, and it did not seem to make them as bad as the original bees were, although they had plenty of drumming and knocking about.

THE QUESTION OF THE YELLOW BANDS.

Some say they are not a pure race. Of this I am not able to speak with authority. I have had them, and seen them in other apiaries for the past nine years; and although I have seen others' bees breed yellow bands, mine have not, and this year I have tested the progeny of from 40 to 50 queens purely mated, and have had no yellow-band breeders. There are two things I have remarked; and that is that, while many of the queens are as yellow as Italians, others are very black; but it does not seem to affect the color and markings of the progeny; the second is more curious still; and that is, the presence of a few workers, say one in about 1000, with their abdomens a jet black, and so smooth that, at first sight, the rings are scarcely discernible. They work as well as any, and their heads, legs, and thorax, are like their fellows'; but these black bodies look very strange. Now you will kindly give me credit for not mistaking them for the black, hairless, shiny bees, which we often see being expelled from their hives, and are suffering from a disease known as *hacilli depletus*, and are often mistaken for robbers. The bees I allude to are not those. I have given some other facts about this race, and also some of their vagaries, elsewhere in another bee-paper, consequently I will pass on.

SECTIONS BUILT OUT WITH COMB THE PREVIOUS YEAR.

If you wish these to be finished as fast, and look as well as others, you must, with a keen and warm knife, pare them down to within nearly half an inch of the midrib before you put them on; they will still act as a bait to draw the bees into the super, and will be built out with the other sections, and look as well.

DOUBLE-DECKED COMBS.

I have had two cases of this occur in two of my supers this year. They are bars $4\frac{1}{2}$ inches deep, and spaced 2 inches apart instead of $1\frac{1}{2}$, and the bees first built out the combs to the ordinary thickness, and sealed them, and afterward built another row of cells on the sealed surface of one side of the comb, and filled that with honey, and sealed the cells the second time. I discovered it when I came to extract, but the bases of the outer row of cells were flat, not natural based, as illustrated in GLEANINGS for April 15.

EXTRACTING FROM COMBS THAT HAVE BEEN USED FOR BREEDING.

Breeding in the combs toughens them considerably, and they will bear the extractor much better; but the color of the honey is not so fine, and the bees are far more disposed to store pollen in them than they are cells that have not been bred in. The top corner cells of the frames in the brood-nest are, I may say, never bred in. Did any one ever see any pollen stored in them? Consequently I do not use frames for extracting if they are pollen-laden and brood-stained the previous year. I have to be very careful over my honey, as I have a good private trade, and command my price. I can make one shilling per section of the comb honey, and the same price per pound for the extracted when put up in white flint-glass bottles. I do not mind telling you, as you are not near me to compete with me for price, I allow a storekeeper, who sells about half my crop, 15 per cent discount for his trouble and risk, and am usually cleared out by Christmas.

I am well content with my harvest, although I have sold lots of bees to a dealer who took as many swarms and queens as I cared to sell, consequently I allowed them to swarm as they chose, and even my nuclei stored surplus some days while the queens were getting fertilized. I have had 200 acres in my radius, of white and alsike clover, and the largest tract lay to the northwest of my bees, and they have had to cross a high road to get at it, and I have been called out by passers-by, who have insisted they were swarming, as they boom backward and forward after this clover honey.

Nature has evidently righted the mortality of last year by causing bees to swarm excessively this year, and the good yield has induced many faint-hearted ones to hold on and not give up yet.

England, Aug., 1889.

AMATEUR EXPERT.

My friend, I quite agree with you in the point you make, that gentle bees may be taught to be cross, and *vice versa*. I have several times been inclined to conclude that young bees were vicious simply because of the example before them from childhood up; notwithstanding, I have several times killed the queen of a cross hybrid stock, just because they were so vindictive. In fact, I have had hives that were the terror of the whole family; but after giving them an Italian queen I have astonished the whole family by taking the hive all to pieces and showing them only gentle Italians where, but a few weeks before, had been those stinging tigers. I have seen these occasional black bees, but I always supposed they were stragglers that were driven from some other colony, although that explanation never seemed satisfactory.—I think the idea has been before advanced, that honey from old dry combs is not as

nice as that extracted from white new combs. I believe, however, that where experiments were made for the purpose of getting at this matter directly, just as fine honey was obtained from the old combs as from the other. Any admixture of pollen, however, is surely detrimental.—I am very glad indeed to hear so good a report from clover sown purposely for bees—at least I suppose it was, as you state it.

McINTYRE'S SCALE-HIVE RECORD.

DOOLITTLE'S METHOD OF RAISING CELLS.

I INCLOSE my scale-hive record for this season. You see it differs from Mr. Mercer's, page 619, in being longer at both ends, and my best honey days do not come on the same day that his do. I believe his scale-hive was located about 20 miles further from the coast than mine. If those scale-hive records are as interesting to others as they are to me they are worth printing; and if the hive has not been packed to make a big report, they tell very accurately what a location will do. This was one of my best colonies that did not swarm.

Date.	Gain in Pounds.	Date.	Gain in Pounds.	Date.	Gain in Pounds.	Date.	Gain in Pounds.
April.		May.		June.		June.	
20	1	17	3	6	7	27	2
21	3	18	3	7	2	28	1
22	4	19	3	8	2	29	2
23	2	20	2	9	3	30	2
24	1	21	1	10	3	July.	
25	1	22	1	11	5	1	1
26	1	23	1	12	6	2	1
27	0	24	2	13	3	3	1
28	0	25	3	14	1	4	3
29	1	26	3	15	1	5	5
30	1	27	4	16	9	6	1
May.		28	3	17	2	7	1
1-8	0	29	3	18	1	8	1
9	1	30	3	19	1	9	1
10	2	31	4	20	1		
11	1	June.		21	1		
12	1	1	6	22	1		
13	1	2	5	23	1		
14	1	3	5	24	2		
15	1	4	2	25	3		
16	1	5	1	26	2		

My average for 500 colonies was only 50 lbs. per colony.

QUEENS AND QUEEN-EXCLUDERS.

I put on 25 queen-excluders last month to try Doolittle's method of rearing queens; 5 colonies refused to build the cells, although I gave them the second batch of prepared cells. One queen got above the queen-excluder, and the cells were torn down; the rest built out the cells in good shape. I intended to let the young queens supersede the old queen below, so I left a cell to hatch in each super, which it did in due time; when the young queens were about a day old I removed 15 excluders. Two days after, I looked in front of the hives to see if the old queen had been killed. Instead of finding the old queens I found all of the virgins, but one, dead in front of the entrance. The one I did not find, superseded the old queen. The other 5 were left above the excluders, to become fertilized through a hole in the super; but they were all killed.

Although this part has failed with me, I still feel under great obligations to Mr. Doolittle; for I never before succeeded in getting queens that suited me, from eggs or larvæ intended for workers. Queens reared in the brood-chamber of a colony preparing to swarm or supersede their queen are better than

those reared above a queen-excluder; in fact, I don't think we can improve on the plan of going to a colony that is preparing to swarm or supersede their queen, cutting out all the queen-cells they have started, and giving a frame of started cells from your best queen. I have over 100 queens in my apiary, reared this season in that way; and they are nearly all superfine xxx queens, and I don't regret the time spent in rearing them.

Fillmore, Cal., Aug. 26, 1889. J. F. MCINTYRE.

And so, friend M., you had only one day during the season when the hive gave as much as 9 lbs. You surely have not had a very bountiful season. It seems a little singular that your honey-yield commences pretty nearly as ours does here—at least not very much earlier; and it closes toward the middle of July, just as it does here in Ohio, as a rule. Where such an experiment is made, it were no more than fair to state how many colonies there are in the apiary, and also how many in the vicinity, that we may see how fully stocked was the field.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

RAISING QUEENS ABOVE QUEEN-EXCLUDING HONEY-BOARDS, AGAIN.

Several years ago a question of priority of a certain discovery pertaining to bee-keeping arose in a western bee-paper, wherein one of the claimants gave plenty of printed proofs of his claim, yet he was misquoted, misrepresented, and misused, till he began to think that, if he ever made any future valuable discoveries, he would use them to his best interests and let others find them out as best they could. Still, I believe there are some who are willing to give "honor to whom honor is due." In GLEANINGS, page 685, it is conceded that Heddon has the oldest claim on raising queens over a laying queen. His writing dates back to 1885. See GLEANINGS, page 518. Now, will you please turn to GLEANINGS for 1883, page 13, to my article under date of Dec. 18, 1882, headed "Two, Three, or More Laying Queens in one Hive"? nearly three years ahead. I believe this is essentially the same principle that Dr. Tinker has just got a patent on. Next!

A. A. FRADENBURG.

Port Washington, O., July 25, 1889.

Friend F., I have just turned to the passage you mention. I had not forgotten it at all, nor my foot-note to the communication. Why I did not mention it at the time I gave Doolittle credit, was because *you* succeeded in getting only *one* of the queens fertilized, and this at the time seemed to be rather accidental. That is, I have been well aware for years that I could get an extra queen in almost any hive about one time in three, by making the brood-nest larger or cutting it nearly off, as you did, by slipping back the cloth cover; and I am inclined to think even now that there will be so many failures, queens will not be reared and fertilized to any great extent above the queen-excluding honey-board. I have before suggested the difficulty, when you want to examine the brood-combs in the hive below. Some one

says it can be done without any trouble. Well, I had a great deal of trouble when I experimented in this line. The queen belonging to the upper story would sometimes take wing when the upper story was set off on the ground, and alight in the lower story while I was handling it. Now, unless I got the hive together again, and got her back where she belonged, there was trouble. I should much prefer to have a part of the brood-chamber divided off by a queen-excluding division-board, and then either one can be examined without interfering with the other. But this idea was given by D. A. Jones when he first brought the queen-excluding zinc so prominently before the attention of the American people. It seems to be the old story over again. It is hardly safe for anybody to say in bee culture, "This is my invention." When it comes before the public, it transpires that a dozen others have been at some time or other working along in the same line, and very often the thing has been described very closely in print years before.

BEES TEARING DOWN STARTERS, ETC.

How high do Alaska peas grow?

Do you have any trouble with bees eating the starters in section boxes?

Where bee-keepers cage the queen to prevent swarming, what kind of cages is used most?

Monroe, N. Y., Aug. 8, 1889. MILLARD MAPES.

Alaska peas grow to about the height of two feet.—Bees will sometimes, when they have nothing else to do, eat away starters in the section boxes. They rarely do this, however, and you need apprehend no serious trouble from this source. With flat-bottom foundation we have sometimes noticed the bees tear it down and rebuild it.—For caging queens in the brood-nest during swarming time, no particular cage is used. Perhaps as good as any thing is a piece of wire cloth folded into a cylinder, one end of which is stopped by a wooden plug, and the other by a plug of "Good" candy. This latter should be protected so that the bees of the colony can not get at it, otherwise they will liberate the queen in 24 hours. Dr. Miller never places any food in the cage, and I think has never found a queen dead.

BLACK BEES FOR BUCKWHEAT, AND ITALIANS FOR CLOVER; WHICH ARE THE BEES THAT GATHER THE WHITE HONEY?

The two bushels of Japanese buckwheat I got of you I sowed June 20th on four acres. June 29th there came a terrible hailstorm and cut nearly all of it down. I did not think there was enough left to stand on ten rods square of ground; but it has come up to nearly a quarter of a crop. I was looking over it this morning, and the bees were fairly roaring over it; but they were nearly all black bees. I saw but one Italian on it, and two or three hybrids. I then examined the white clover. The bees were working lively on it, and nearly every one was Italian. I saw two black and a few hybrids. I wish others would examine and see if bees are working the same way in their locality. I have 29 swarms of Italians, 2 or 3 of blacks, and 13 hybrids, within 100 rods of the buckwheat, while my neighbors have plenty of black. One correspondent writes that

bees worked very little on the Japanese, while they were fairly swarming on the silverhull. From what I can learn by observation, tastes differ in the different races of bees. I should like to know if there is a difference in the quality of honey made by the two races; and if so, which is the best? In looking over my bees last week I saw two queens in each of two hives—one old one and one young one. I knew the old ones, for their wings were clipped; but they were much smaller than the young queens. Is it a common occurrence? E. S. HANSON.

La Otto, Ind., Aug. 7, 1889.

It is not uncommon to see black and hybrid bees gathering dark buckwheat honey, while Italians are gathering light honey from clover.

HONEY-POISONING IN NEW ZEALAND.

I send you a clipping from one of our papers, on honey-poisoning. It is the first case of the kind I have heard of in New Zealand. THOMAS DIXON.

Masterton, New Zealand, July 12, 1889.

A few days ago a northern telegram gave particulars of a remarkable case which had occurred near Matata, in the Bay of Plenty, where three brothers, who had gone into the bush in search of honey, were poisoned, and two of them died. It was supposed that this fatal result had been because they had eaten of honey which contained some poisonous ingredient. Mr. Hopkins, who is our best authority on the subject of bees and honey, wrote to the New Zealand *Herald*, stating that the only plant which had ever been known to convey poisonous qualities to the honey was the wharangi, but it could not have caused these deaths, and, besides, this was not the season when the bees could gather any thing from it. Mr. R. de Thierry has given the *Herald* some important information on the subject. He states that on one occasion he was traveling along the sea-coast with some Maoris when they fell in with a store of honey accumulated by some wild bees. Mr. de Thierry and one of the natives ate heartily of the honey as they found it. Soon after Mr. de Thierry was affected with giddiness, and fell down, feeling very ill. The native who had eaten with him was similarly affected. The Maoris promptly adopted remedial measures, such as they had probably tried before in similar cases. They kindled a fire, piled some seaweed upon it, and held Mr. de Thierry amongst the fumes till he became so sick that he vomited freely. By and by he got better, and the native, under similar treatment, also recovered. Mr. de Thierry says that the poisoning arises from the bees having access to the karo (*pittosporum crassifolium*), a tree or shrub which grows all around the coast of New Zealand. At a certain season a kind of gum exudes from the karo, which the bees use for the wax of the combs. The poison is in the wax, not in the honey. This matter is of importance, for bee-keeping is now general, and the karo is being generally planted, as it makes a pretty and useful hedge. It can stand any amount of stormy weather, and also the spray of the sea.—*Evening Post*, Wellington, New Zealand.

SHALL THE BEE-KEEPING INDUSTRY BE REPRESENTED AT THE WORLD'S FAIR IN 1892?

It is now a pretty well-understood fact, that in 1892 we are to have a grand "World's Fair" in New York, and in that case it is important that the exhibit of bees, honey, and supplies, be the finest ever seen in this or any other country. A grand exhibit of this kind would do wonders in increasing the market for honey, and would do our whole industry a world of good. Let us therefore put our shoulders to the wheel by recommending some one to act exclusively for our industry, on the proper committee, and have an exhibit that will show the world that we are the foremost nation in bee-keeping. It would be well for our conventions to recommend some one who has the welfare of the whole industry at heart, and who is within reach of

the city. If the several conventions will send me their recommendations I will see that they reach the proper authorities, as I am constantly in New York. I have already written to the Mayor, urging the appointment of some one to look after bee-keeping and bee-keepers' supplies; but the recommendation of our different conventions would be of far greater weight. Let us start the ball rolling, and we shall see such an exhibition in our line as was never seen before. JOHN ASPINWALL.

Barrytown, N. Y., Aug. 26, 1889.

Your suggestions are good, friend A., and we heartily indorse the scheme. Why wouldn't Dr. A. B. Mason, the president-elect of the N. A. B. K. A., be the man? He has had more experience in this line than any one else we know of. He is big enough in every sense of the word to talk down the comb-honey slanders. Let's vote for the doctor.

A CHEAP SUBSTITUTE FOR ENAMELED CLOTHS, ETC.

In a late issue of GLEANINGS you say that the bees will always cut out paper. I have used manilla tag-board, 100 sheets, 24 x 36, 100 lbs., worth \$2.25, for a number of years, for covers, in place of covers or enamel cloth, and I very much prefer them. The bees never cut them unless I am careless and let them get at the edges, by leaving, say, ½ inch bee-space. I paint the board with oil and ochre. From the above you will see they are cheap. Several issues back you speak of sulphur. Have you tried melting it in an iron kettle or ladle, and dipping in it strips of strawboard or several folds of coarse wrapping-paper? This was the way my grand-parents used it in England, and I have failed to have an improved way pointed out. Nail one or two uprights on a block; set the block on something not combustible; lay in the sulphur; match and fumigate as you wish.

Our bees are doing the best they have done for a number of years; though our best harvest (golden-rod and fall flowers) is not yet opened.

Emmetsburg, Ia.

J. C. BENNETT.

No doubt, manilla tag-boards as heavy as you mention would answer the purpose nicely. They are very apt to get injured, however, and can not be peeled over the frames like the enamel cloth, and therefore they have not found much favor.

RAISING CELLS ABOVE A QUEEN-EXCLUDING HONEY-BEARD; WHO HAS THE PRIORITY OF THE IDEA NOW?

In the spring of 1882 I adopted a plan of artificial swarming by shaking the bees off the combs on to frames filled with foundation, and placing the brood in a third story on top, or over the wide frames. I found, by cutting out the ends of the wide frames, that enough bees would go up to care for the brood, and that they would build queen-cells every time. I used a queen-excluding honey-board over the frames in the lower story. I communicated the above facts to Mr. W. J. Rasin, of Jenkintown, Mont. Co., Pa. (since deceased). He wrote to Mr. Heddon, asking his opinion of the plan. Mr. Rasin told me that Heddon did not think very favorably of it. I am not sure, but I think he also wrote to Mr. Hutehinson about it. I mentioned it in a letter to Doolittle, and I also wrote to you, stating that I would describe the method in an ar-

ticle for GLEANINGS, if desirable. Not receiving any response I came to the conclusion that you did not think it worthy of note. I can furnish affidavits of two other bee-keepers in this locality, to whom I communicated the facts, and who have practiced this method for four or five years.

Ashbourne, Pa., Aug. 23, 1889. W. E. FLOWERS.

MUMFORD'S CLOVER-BLOAT REMEDY A SUCCESS.

A. W. Mumford's remedy for clover bloat (see p. 672) is good, I know, as I have practiced it for several years. I had a cow some years ago that would have the bloat nearly every day when first turned on clover. She got so she would come to the barn when first taken, seeming to know she would get relief. I had a stick about a foot long and $1\frac{1}{2}$ inches through, with a cord on each end, in a handy place; and when she came up I would put it in her mouth like bits, and tie it back of the horns and let her go. In a short time she would be all right. It has never failed with me. If used in time I think it will cure any case of bloat. S. H. MALLORY.

Decatur, Mich., Aug. 24, 1889.

Thanks, friend M. Your testimony settles the question in regard to the value of this simple mechanical remedy. The above may have been published in our agricultural papers, but I have never come across it.

EXCESSIVELY HOT WEATHER IN CALIFORNIA.

We are having the hottest weather this season, since 1885. One day the thermometer went up to 114 in the shade. I ventilated my bees early in the morning, and did not have any melt down; but some of my neighbors were less fortunate, and lost a number of colonies entirely, by melting. If you never experienced such hot weather, it is interesting: the perspiration starts from every pore; and the only way to keep cool is to keep your clothes wet. Every thing in the house feels hot, even the marble on the bureau; and wife says the wheel on the sewing-machine almost burns her hand. You feel like saying, "Excuse me," when asked to take a chair. I kept the lawn-sprinkler running, and every half-hour the children and myself would go out and stand under it until our clothes were wet through. It would be foolishness to try to work out in the sun, for the thermometer says 134 out there, so I will sit in the house and work the typewriter. I put a wet cloth around the thermometer to see how much it would go down. It went from 114 to 80. That is nature's way of keeping the blood cool; but when the thermometer is 114 I prefer to pour the water on the outside rather than take it inwardly. J. F. MCINTYRE.

Fillmore, Cal., Aug. 24, 1889.

Friend M., we are very sorry that it was so hot; but we are much obliged to you for your valuable report and suggestions. You ought to be thankful for that beautiful irrigating canal that runs just back of your ranch, along the mountain-side, away up above the tops of your orange-trees. I think I could stand 114 very well, if I could have a spray of that beautiful spring water playing constantly over me; but I am greatly astonished to find that a wet cloth could reduce the temperature from 114 down to 80. Give my respects to the little girl who beat Uncle Amos climbing the mountain, and carried her dolly besides.

ANSWERS TO QUESTIONS FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth \$1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text book before sending in their questions.

THE CHARACTER OF HONEY-DEW.

F. C. F., *Massachusetts*.—Honey-dew is not necessarily fatal for wintering, but it is usually safest to extract it or remove such combs containing it, and use them during the latter part of spring for feeding. They are just as good for stimulating brood-rearing. Honey-dew is usually dark, almost black. The flavor is very unpalatable—almost sickening. See "Aphides," also "Honey-Dew," in the A B C.

HOW TO START IN BEE-KEEPING THE MOST ECONOMICALLY.

M. D. S., *Massachusetts*.—We would not advise you to buy a black queen with Italian bees. Your better way is to buy an Italian queen with black or hybrid bees. This will in time give you a very nice Italian colony. The cheapest way to start an Italian apiary is to purchase two or three swarms of black bees; catch and kill their queens and introduce to each an untested Italian from some good breeder. If you can not purchase the black bees, the next cheapest way is to buy a pound of Italians with an untested Italian queen. Put these on some frames of foundation, and give them stimulative feed, and in two or three months you will have a pretty respectable colony to go into winter quarters.

SURPLUS POLLEN IN COMBS, AND WHAT TO DO WITH IT; WHEN THE BEES WILL PULL OUT FOUNDATION.

C. N. L., *Michigan*.—We would not advise you to cut out the pollen in the frame, and insert in its place comb foundation. As there is no practical way of getting it out of comb mechanically, keep such combs over till next spring, when they will be quite valuable for stimulating brood-rearing. As it is desirable to get colonies as strong as possible for the honey-flow, which comes later, these combs containing some pollen will save quite a little in the way of stimulative feeding. It will be very much cheaper to use frames of foundation, rather than to mutilate combs containing pollen. The best time in the year to have foundation drawn out is when honey is coming in. As a general thing, bees will not pull it out at other times, except under the stimulus of feeding.

H. L. S., *Ohio*.—You might choose bee-keeping as a means of livelihood, but you must be prepared to stem over now and then a bad season, when the returns from the apiary or apiaries would barely if at all cover expenses. It is usually safer to combine some other pursuit with bee-keeping, if the locality is not always to be depended upon for honey. Whatever you do, we would advise you to make a small beginning. By all means make the bees pay the expense of all needed improvements consequent upon their increase. As to which branch of bee-keeping will pay best, the production of extracted or comb honey should be settled by your

market. You can transfer safely now, although you will have to be careful, on account of the large amount of honey in the combs, to keep robbing from getting started. A six-inch saw would answer your purpose for hive-making. Of course, a larger one would be many times convenient.

OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 143.—*a. Jones prefers hybrids because they are as good or a "little better" workers than the pure Italians; and, further, because he can shake them (the hybrids) off the combs easier, for extracting. Besides all this, he says it is considerable trouble to keep Italians pure. Brown does not agree. While he admits that the hybrids are, as a general thing, as good workers as the pure daughters of Italy, he prefers the latter; because, as they are less inclined to sting and rob, he can get through with more work in a day. He avers that the time gained in handling gentle bees more than compensates for the extra trouble and expense in keeping the race pure. Now, the question is, whose side would you take? b. Whose side do you take in actual practice?*

a. Jones; b. Jones.

H. R. BOARDMAN.

I side with Brother Brown, every time.

C. F. MUTH.

a. Jones. b. Jones, Jones, JONES.

P. H. ELWOOD.

My bees are mostly pure Italians.

S. I. FREEBORN.

In theory or actual practice I take Brown's side.

P. L. VIALLO.

Brown's side, every time. We are always sorry when we neglect to keep up the purity of our stock.

DADANT & SON.

Brown's side, as I find that the dark Italians are as good workers as hybrids, and they are equally hardy.

A. E. MANUM.

a. Jones's side; yet my dislike of so much stinging, and my love of the beautiful, have led me in practice to follow more after Brown. R. WILKIN.

a. As a honey-producer, I am with Jones; as a queen-breeder, with Brown. b. In practice I have only hybrids between Carniolans and Syrians, with, quite likely, some Italian and some German. So far as I have got, I like my present bees.

A. J. COOK.

a. Brown is right; while some hybrid swarms are as good workers as the Italians, I do not think they will average as good; besides, there is the pleasure and comfort of handling gentle bees. b. Brown's; my "other half" says, "Durn the hybrids."

MRS. L. HARRISON.

a. Brown's. b. Brown's, as near as I can; but I question whether, in ordinary practice, it pays to supersede every queen not absolutely pure. All good methods can be carried to an excess, and judgment has to be used in this as well as in many other matters connected with bee-keeping.

O. O. POPPLETON.

a. I prefer the hybrids, or a bee that will show two bands, and many three bands. They look well and work well. I have had very bright Italians, and the results from them were not so satisfactory. I take but little pains to keep my bees up to a gold

en standard. I am discarding the shaking and brushing plan for something better, where even cross hybrids keep their temper. b. Jones.

RAMBLER.

Both my theory and my practice favor the hybrids. I dissent from the theory that hybrids are specially vicious, so far as it concerns carefully bred ones. I think, also, that the reputation of the Italians for gentleness needs a good deal of discounting—their gentleness being a matter of appearance rather than of reality. I fear that very gentle bees of any race will be found deficient in energy.

E. E. HASTY.

I think Mr. Jones's main reason for preferring hybrids is the one least emphasized—"considerable trouble to keep Italians pure." There is little difference between some hybrids and Italians generally. Italians sell better, and are a little nicer to handle. The working qualities average up about even with hybrids. On the whole, for practical purposes I would not take the trouble to keep them pure; and this is what I practice.

GEO. GRIMM.

Now look here. You're not going to get me to side with either. For a number of years I have tried to increase the Italian blood in my apiaries; but without a good deal of trouble there will be plenty of hybrids, and I think well enough of them to take very great pains to be rid of them. As to the matter of gentleness, I take them as they come; only when some colony shows a bad pre-eminence in the way of crossness, their queen's head comes off at the first convenient opportunity.

C. C. MILLER.

a. Brown's. Jones is certainly mistaken, in my opinion, in regard to hybrids being better workers than Italians. If he will weigh all the honey in all parts of the hive from either race, he will find, if I am not very much mistaken, that there will be a little amount in favor of the Italians, especially in a poor season. Because the hybrids put all of their honey in the sections, thereby leaving them in a starving condition after the sections are taken off, does not make out that they are the best workers. b. After trying all the different races of bees which have come to our shores, I have now nothing but Italians.

G. M. DOOLITTLE.

a. I'd take Jones's side; but I want some pure bloods to raise queens from. I don't raise drones (I guess I will this year, though, in spite of myself, for the bees are playing hob with the lower corners of most combs), and not one in five of my queens is purely mated. b. Jones's. My hybrids are not so cross as many write about. I have opened the hive of every colony I have, and examined them at least once each week, since March 24th, and have used smoke only twice on a few colonies. I generally, but not always, wear a veil, and I've been stung but little. The crossiest colony I have has an imported Italian queen from A. I. Root. Do you know him? May be my bees are good-natured because I don't scold them.

A. B. MASON.

a. Jones; b. Jones. Our bees are, most of them, more or less mixed Italian and blacks, or brown bees, and the nearer they come to being pure brown bees, the better I like them. I have several Italian queens from queen-breeders, and I had two imported Italian queens, and I never had a strain of Italian bees yet that were as good natured as the

blacks. All the Italian bees that I have had have been cross, and ugly to handle. We are now going to try the Carniolan bees, as they are recommended to be less inclined to sting, and I believe they will be more gentle than the Italians, as they look more like the brown bees. As for myself, I can handle any of them without gloves or veil; but other folks have to be about them, and for that reason I want good-natured bees. E. FRANCE.

a. I agree with Brown. I think that Italians are as good as hybrids in all respects, and, in some points, as those mentioned, a great deal better. Cross bees certainly cost a great deal of time, to say nothing of comfort and temper. I am not fond of shaking and brushing bees off the combs for extracting. I would rather let them crawl off. The Reese bee-escape does the business, and saves time, trouble, and stings. b. In practice, hybrids are always to be found in my apiary, because there are black bees around me, and I do not think it worth while to replace a good queen simply because she is mismated. Nearly all my queens, though, are reared from selected Italian stock. My breeding queens are selected, not because of the looks of themselves or bees, but principally because of the work their bees do. Yellow bands do not gather honey. J. A. GREEN.

a. Although I am a strong advocate of judicious crosses between the best strains of German and Italian bees, I do not prefer such bees as Jones describes. Judicious crosses (call them hybrids if you will), while they shake from the comb more readily, they do not leave the combs when the hives are opened, and fly into the air and roll down in balls at your feet any more than pure Italians. Again, they differ from Jones's hybrids, because they do not sting or rob any more than any other bees extant. If these crosses were not as good natured as any other good working strain of bees, I would say, get the good-natured strain and discard the others. The above is my practice. I know of no bees any more easy to handle, nor as good honey-producers, nor as excellent comb-builders, as the cross-bred bees above described. JAMES HEDDON.

Well, friends, I am a little bit surprised, and may be somewhat disappointed in your reports, especially as so many side in with Jones. There is one point, however, where I should agree. The man who destroys good queens simply because the workers have not all the marks and stripes to accord with his notions, seldom becomes very much of a honey-producer. We meet such individuals now and then. What I mean is, those who lay great stress on looks and markings, and little or none on other qualities as honey-gatherers. In visiting the great honey-producers I almost invariably find they have more or less hybrids; but their colonies are all populous, and most of them are great workers. Another thing, one must have a good deal of time to spare who watches the markings of bees of every particular colony when he has stocks by the hundred. A great many honey-producers also, if I am correct, are in the habit of destroying queens where the bees are exceedingly vicious; and they do this, too, even if said vicious colony gives extra yields year after year. It is true, that blacks as well as Italians occasionally give us very gentle

bees, and the reverse is also true. I can not remember now, though, that we ever had a colony whose queen was imported from Italy, whose bees were so cross that we regarded them as a nuisance. Dr. Mason, are you sure that you did not "scold" that colony of imported bees? You should have written right back to A. I. Root, that he was an impostor and a fraud, because he sent you a *hybrid* queen when you ordered and paid for an *imported* queen.

QUESTION 144. a. Which bees, as a general rule, give the most honey according to your experience—leather-colored Italians, or the very yellow bees? b. Are the so-called four-banded golden Italians any better workers than the average Italians?

a. Leather-colored. b. No.

RAMBLER.

a. I think the leather-colored Italians deserve the preference; b. No.

GEO. GRIMM.

a. The leather-colored Italians; b. No, not as good with me.

A. E. MANUM.

a. Leather-colored; b. Not according to my experience.

A. J. COOK.

a. Leather-colored, part black. b. I don't know them.

P. H. ELWOOD.

a. The leather-colored Italians, every time. b. No, not that I know of.

JAMES HEDDON.

a. The leather-colored. b. No. As a general rule they are not much better workers than German brown bees.

PAUL L. VIALLO.

I never saw much difference in the honey-gathering qualities of bees as to color. b. I never had any.

E. FRANCE.

a. My experiments have not been sufficiently accurate to justify an answer in favor of one or the other.

R. WILKIN.

a. The dark Italians, or a cross between the yellow and black bees. b. I think not.

H. R. BOARDMAN.

a. I have not made close enough observations to have a decided opinion. b. I don't think I ever had any four-banded bees.

C. C. MILLER.

The brightest Italians are good enough for me. But the greater propensity for honey-gathering among those mentioned above is imaginary, according to the best of my judgment.

C. F. MUTH.

a. I have not got that conundrum answered yet, in my own mind. When I do I will report. I have two swarms of very yellow bees, that are certainly very fine in every respect.

MRS. L. HARRISON.

Very yellow Italians may be very good if they have not been bred "in and in," with sole regard to color, as is too often the case. For this reason we feel safer with the leather-colored bees.

DADANT & SON.

a. My first experience with yellow bees was not satisfactory. I have had for some time very light bees that are equal to any in color for honey. b. I know nothing about the four-banded Italians.

S. I. FREEBORN.

The leather-colored Italians. The stock I prefer is neither very dark nor very light. The yellowest bees I ever saw were also about the poorest workers. Some strains of these yellow bees produce comb honey with dark cappings. I would not keep a queen which produced such bees, in my apiary,

There are Italians which produce as nice comb honey as the blacks, and I aim to keep only such.

J. A. GREEN.

a. In Northern Iowa the light Italians gave me the best honey-yields. b. I have had no experience with the four-banded golden Italians, but I presume they are only a very light strain of pure Italians.

O. O. POPPLETON.

a. The leather-colored. b. My prettiest, that is, very yellow bees, are my poorest workers. A few years ago I bought a beauty of an imported queen of A. I. Root. Her progeny were perfect beauties, and all just alike, and she kept the frames full of brood, but they did not swarm, and gave no surplus, while the apiary of 75 colonies, this one included, gave an average of 60 pounds of basswood honey to the colony.

A. B. MASON.

'Spects that "leather-colored Italians" is mostly a nice, gentle term for a well-established strain of hybrids—imported bees by no means excepted from this remark. If you want Italians, get Italians. Then if you want them mixed, mix them yourself. I have owned but few colonies of very yellow bees; but I think very bright color is sometimes accompanied by lack of energy. The four-banded Italian is an "animile" I am not familiar with.

E. E. HASTY.

a. According to my experience there are three strains of Italians in this country—the dark, or what is called "leather-colored;" the orange, and the light yellow, or lemon-colored. Of these I place the orange-colored first; the leather-colored second, and lemon-colored third. b. Why say "so-called"? Bees either show four golden bands on the horny scales to the abdomen, or the person saying they do is telling that which is fallacious. If said four-banded bees are as good workers as any of the others, are we not a point ahead in keeping them? for, surely, A. I. Root places a higher price on queens of beautiful yellow color than he does on the dark ones. Hence, according to Root, such bees are the best, if they are as good honey-gatherers, which I claim they are.

G. M. DOOLITTLE.

Well, well! There seems to be far more unanimity in this matter of leather-colored Italians than in the former question. Scarcely one favors very handsome bees as honey-gatherers; and yet what a deal of wrangling there has been in years past over this matter of nice-looking bees! I have found men who laid so much stress on the looks of the worker-bees that they would refuse to take a queen as a gift, because the stripes were not just according to their notion, paying no attention to the fact that the queen might be extraordinarily prolific, or that the bees might have gathered a wonderful crop of honey. As a rule, however, the large honey-producers are not of this class of people. Our good friend Dr. Mason seems bent on pitching into A. I. Root to-day. Doctor, what did you do with that imported queen whose bees were such beauties, and just alike? It must be that was a strain of some sort of aristocracy that did not propose to labor for a living. We have occasionally had colonies of very handsome bees that were also excellent workers, and several times I have been tempted to decide that bees for honey are, pretty nearly all, ugly to handle.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or, The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

SOMETHING ABOUT BEARS, WOLVES, AND OTHER WILD ANIMALS.

WRITTEN FOR THE JUVENILES, BY UNCLE AMOS.

WELL, little friends, I have not told you a story for quite a spell; at least, I have not written any thing specially for your department; but I have had one in mind for some little time. When I went to visit that great bee-man, Mr. E. France, I found one of his out-apiaries away back in the woods. They are all located near some farmhouse, as a matter of course; and when I came near this special farmhouse there were several things that attracted my attention. The first thing was a brood of beautiful little ducklings. While friend France was unhitching his horse I looked over a low fence and saw those little ducks in charge of a speckled hen. The children had given them a trough of water, and, oh my! how that old hen did sputter and worry because the ducks jumped into the water and splashed about, just as if water was ever so much nicer than air during that summer afternoon! Pretty soon a very nice little girl came out to look after the ducks, and I began to get acquainted. By the time friend France had got around, the little girl's mamma came up, and Mr. F. introduced me as Mr. A. I. Root, probably not thinking that Mrs. Craven had ever heard of such a man as I. At the mention of my name, however, she uttered an exclamation of surprise, and replied:

"Why, this surely can not be A. I. Root, the author of the A B C of Bee Culture?"

Then I pleasantly told her it was. Friend France expressed surprise that they were acquainted with the A B C book, as they were not bee-keepers themselves at all. She replied that they once belonged to a horticultural society, and among the books purchased for their library was the A B C. When their society disbanded, the books were divided up, Mr. Craven and his wife receiving the A B C book, which, although they owned no bees, had been read till they

felt quite well acquainted indeed with its author. Then she blew a tin horn, and her husband dropped his work in the fields, and came in. While we sat down to a good substantial farm dinner, he looked at me smilingly, and remarked: "Well, I never expected it would be our good fortune to have Mr. A. I. Root sit down with us at our table."

Of course, after this I felt perfectly free to get acquainted, not only with the children, but with the pack of hounds and the puppies. Friend Craven is a genius, and his special hobby is hunting, trapping, and studying the habits of wild animals. In Wisconsin a large bounty is offered for the scalps of wolves, bears, etc., on account of the damage they do to sheep and other farm stock. Mr. Craven informed me that the wolves some years ago destroyed fifty dollars' worth of sheep in one night on that very farm. The bounty paid for wolf-scalps is something like this: Ten dollars for a

C. has the dogs so well trained that he forbade any one of them biting the wolf at all, and he went in and caught him and put a collar around his neck. When we went in to see the wolf, he turned his head one way and then another, and even pushed it down in one corner, out of sight, covering it with his paws. He seemed to say by his actions, "I do not want to see you at all. Please go off and let me alone." And then he fairly whined, because he felt so bashful, and so much embarrassed in the presence of strangers. His master, however, pulled him out of the corner by a chain, and made him stand up and show himself. I told friend C. that, if he would get the wolf out into the sunlight, I would take his picture with the Kodak. For a long while he kept putting his head down between his paws, or down against the woodpile. But finally we got him to look up; and while he was glaring at me, and showing his teeth, I snapped the key of the Kodak, and here is his picture.

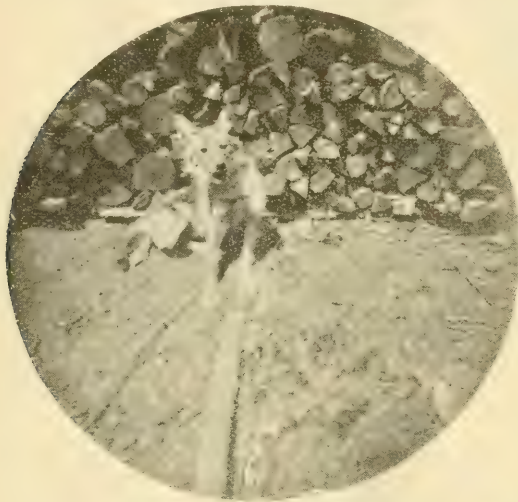
I just wish you could have seen the glare of his eyes as he showed his teeth at me, as he thought I was going to shoot him, or possibly scare the life out of him in some way or other.

Just as we were ready to start I was greatly interested in seeing the thirteen hounds jumping and capering around Mrs. Craven, who was just going out into the yard with a small-sized tub, or something of the sort, in one hand. It was time to give them their dinner, and I laughingly remarked that they were interested in their daily food about as much as any of us. Mr. Craven, however, replied:

"Friend Root, it would perhaps surprise you if I should be able to draw their attention to something else so effectually that, hungry as they are, their dinner would be forgotten and deserted in an instant."

I replied that I could hardly see how it were possible; but he bade me please watch him carefully. I saw smiles on the faces of the rest of the family. Well, what he did

was to slip into the house very quietly, and presently return with his gun. He kept the gun out of sight as much as possible, screening it by his body. But pretty soon one of the grayhounds caught a glimpse of it. In an instant it uttered a peculiar call, or bay; and as if by magic every one of the beautiful animals left the food and started after their master. He slowly walked toward the gate, still keeping the rifle out of their sight; but their eyes and instincts were keen. The whole pack set up a chorus of voices, and in their joy they leaped and bounded around him as if they would spring over his head. Some of them bounded on as if to lead the way; and you never before, perhaps, witnessed such rejoicing by a lot of dumb animals. All this was just because they supposed he was going out for a hunt. Perhaps miles upon miles of travel lay before them, so far as they knew, and doubtless hours of time



THE WOLF THAT DIDN'T WANT TO HAVE HIS
"PICTURE TOOK."

young wolf, and fifteen for a she-wolf. You see, they pay extra for destroying the *mother* of a lot of cubs. I want to say right here, that friend France is also a celebrated wolf-hunter. In one room of his building at home he and his boys have fitted up about as interesting a museum of stuffed wild animals as we see at our colleges.

After dinner we went into the front room, and one of the curiosities on the table was the skull of a bear, with a hole broken in at one part of it. By the side of the skull lay a hatchet, and friend Craven told me he killed that bear in a hand-to-hand encounter, with no weapon but the hatchet. Friend C. has a pack of thirteen hounds, to assist him in hunting wolves and bears. In a pen near by they had eight puppies just old enough to be pretty and cunning. Inside of the little building, or barn, was a young wolf which the dogs had chased into a brush-heap, if I remember correctly. But friend

without food; but for all that their dinner was abandoned without hesitation, and, to the greater part of them, untasted. Can you wonder that my heart bounded with the enthusiasm which I caught from them? and I fairly longed to go with the dogs and their master, off on a hunt. As I mentally go over the scene I can not help but wish now that I had stayed, even if it made me a week longer in getting home. Next time I will tell you about a wolf-hunt.

A BLACK BEE.

Here is a black bee, and it has long white hair on two of its legs. I never saw any like it before. We have 19 swarms of bees. I help hive the bees when they swarm. Mr. Root, what kind of a black bee is this?

CUSTER R. BROWN, age 12.

Colora, Md., Aug. 23, 1889.

The bee you inclose we should say was nothing but an old black bee. He has been in the service a good while, and has worn the fuzz all off his body, which makes him look real black and shiny.

HEAVY RAINS.

We have two new swarms of bees, and we had another one; but it went back into the hive. The last one stung papa eight times, because they were so cross. We had a heavy rain here in July, and the wind blew branches off from trees, and it blew the wild cucumbers off from the windows. We have not had any surplus honey yet. Our main crop comes from heart's-ease. The Japanese buckwheat that papa got of you is in bloom.

EVERETT THIERY, age 9.

Waco, Neb., Aug. 16, 1889.

UNCLE'S BEES.

My papa has no bees, but I was down to Mr. Stuck's, and he has 45 stands. I watched them a little while. They are making lots of honey just now. Uncle Joseph was hunting bees, and found 4 swarms; 2 were in large trees, and the men didn't want them cut. He cut 2, and brought them home, and each tree had about 25 pounds of honey. Mr. Stuck told me he took off 300 pounds of honey this summer, and has a lot more ready to take off. We live in the country. I go to Sunday-school. I love to go. We have Sunday-school after church. I wish all little boys and girls would go to Sunday-school.

MAGGIE KREBS, age 11.

Schoolcraft, Mich., Aug. 19, 1889.

PAPA'S BEES.

We live up here in Minnesota where there are a great many who keep bees. Six years ago my papa got two colonies, and he has now 115. Last winter he got Mr. B. Taylor to make him 56 hives. Pa thinks they are just the thing to have. He has a place fixed off in the cellar that he winters his bees in. Papa takes GLEANINGS, and he said that he couldn't get along without it. And he also has the A B C book. Papa never did feed any of his bees, as other people do that keep bees. Papa had 4 or 5 swarms go off this summer. Do you think a swarm of bees would go off without clustering first? Some people that keep bees up here say that they had a swarm of bees come out and go right off.

EMMA LEVEY, age 10.

Preston, Minn., Aug. 27, 1889.

Swarms do not generally go right off without first alighting, though they have been known to do so.

THE EVILS OF THE TOBACCO HABIT.

BY THE AUTHOR OF THE TOBACCO MANUAL.

DEAR BROTHER:—I usually read your Tobacco Column in GLEANINGS. In the issue of Aug. 15th, I think there is no such column. In seeing that it was wanting in one instance, I thought that I would write you a sketch of what I am doing this summer; and if you can find nothing better to put in your columns you are at liberty to use this. I thought that I could not use a little of the latter part of the evening of life better than to give a few lectures on the tobacco habit. In cold weather I am not able to be out much, on account of a bronchial affection with which I have been afflicted for some years. I began in May, after it became so warm that I would not be exposed, and shall continue till cold weather. I met with far less opposition than I expected in this work. One fact I try to emphasize in all my lectures, is the ease by which a person may fall into, or contract, a habit, that it is so hard to get rid of. Few are the boys that would wish to contract a habit that would be galling to them the rest of their lives. And yet this is just what most of them are doing when they are smoking their first cigar. One man said to me, just the other day, "I would give a hundred dollars if I could quit the use of tobacco, and be myself, without it." Another who had quit said to his friend who wanted he should take another smoke with him, "I would not do it for a hundred dollars. I would not have the fight over again." Still a third, who had four sons that he wanted to keep from using tobacco, stopped himself to be an example to them; and on being importuned to use it again he said, "Not for a thousand dollars." That was his estimate of his example to his sons. And yet a fourth, who had learned to use tobacco—and yet a young man, but little more than twenty, had the habit so firmly fixed that he said, when importuned to stop, "I would not promise to do it for a thousand dollars." It appears a matter of but small moment to smoke now and then a cigar or take a quid of tobacco; but when one has been beguiled into the habit, the quitting is not so trifling a matter. I found an old man the other day who had not used tobacco for two months, and that day he was chewing hops vigorously, and the women in the neighborhood were sympathizing with him in his effort, if possible, to break up the habit of using tobacco. I don't know how it will turn out; but a woman told me but yesterday that her husband, on quitting the use of tobacco, chewed poplar twigs for a whole year, carrying them all the time in his pocket. So hard is it often to break up the habit that is so thoughtlessly acquired. A sure way to stop the tobacco habit is, *never begin*.

I find many wives, wherever I go, who tell me that, if their husbands are out of tobacco, they would go and get it for them, if they had to pay for it by taking in washing; because they are so irritable and cross, if, perchance, they are without. One of my gravest charges that I bring against tobacco is that it is capable of bringing a person into such a condition, in body and mind, that he can not be pleasant and agreeable without that draught of poison. There is not that family of children, whose father ordinarily uses tobacco but knows, *too well*, when he is without it.

The great evil that tobacco is doing in the com-

munity is not generally sufficiently understood, except by physicians, nor by all of them. For instance, last Sunday I dined with a man in a small town of a few hundreds, and he told me that he had so used himself up with tobacco that he could not write with a pen, and with a pencil only as he steadied one hand with the other, barely to write his name. By the advice of physicians, and with a very great trial, he succeeded in giving it up; and now he can write with a pen, and is enjoying quite good health. He also told me of another man, quite young, in that town, who had to give up business; he called him demented; said he was able to walk about town some, and that doctors were trying to keep tobacco from him. They hope to see this young man recover, and he probably will, if they can keep tobacco from him.

The effects of tobacco are functional, at least for a time; and if the habit can be broken, and not returned to, we can be hopeful of a permanent cure. I have met with two physicians in my lecture-tour who have told me that, during the past year, they have met with patients who did not know what was ailing them, and all they had to do was to prescribe the non-use of tobacco. In both instances, they said, the prescription was followed rigidly, and proved efficacious. There have been, in former years, two difficulties in the way of such prescriptions as I have just mentioned. Some patients have not been willing to believe that the doctor has rightly diagnosed his disease, and perhaps still more who have been unwilling to follow the prescription. However, we will hope, as more light is being shed on the subject, that physicians and patients will get along better in the future than they have in the past.

In my lectures (giving but one lecture in a place, of course), I can say only very little of what might be said on the subject. After a brief introduction I give the poisonous properties of tobacco, as shown by analysis, and then lay down a few well-known propositions, such as are easily proved by undoubted testimony. They are substantially as follows: Tobacco interferes with physical development; it hinders intellectual attainments; it lowers moral character; it is disease-producing; and I close by showing the influence of tobacco on the present condition and future prospects of the church. Under the last head I attempt to show the vast amount of waste of time and money, a portion at least of which rightly belongs to God. The notorious fact that there are twice as many names of females as males on our church rolls, when taken in connection with the fact that at least nineteen-twentieths of all the tobacco used in our land is by the males, is significant in the discussion of the last proposition. Do away with the production and sale of liquor as a beverage, and tobacco, and I believe we should see our boys and young men as willing to take the vows of the Lord upon them as are our girls and young women. I am quite tired of hearing it argued, as is done in some quarters, that our all-wise Creator "has formed the female mind, by nature, more trustful than he has the mind of man." I would rather trust the mercy of God now than to bring the charge against him, at the judgment, that he did not form my mind as "trustful" as he did the mind of my wife, or the mind of my son as "trustful" as he did the mind of my daughter. I would not restrain the grace of God; but I must confess that I have but small hope

of seeing the boy, or young man, converted, if he keeps himself narcotized with tobacco.

Mapleton, Minn., Aug. 19, 1889. N. A. HUNT.

Your array of facts prompts me to give something from actual experience here in our own town of Medina. One of our prominent physicians, perhaps the most prominent, was a few months ago very sick. In fact, it was currently reported that he must die, and I never expected to see him out on the street again. In a few weeks, however, I was surprised to meet him. Some little time afterward I asked him what it was that brought him up so quickly—whether it was some important remedy or the skill of some city physician. In short, I told him that I should very much like to know what doctors did when they were dangerously ill. He laughingly replied that he guessed it was a duty of his to tell me all about it. He finally said that, so far as he could determine, his recovery came solely and simply from leaving off a bad habit.

"Why, doctor, you don't mean to say that you were addicted to bad habits while on a sick-bed, and near death?"

"Yes, Mr. Root, I do mean to say just that. And when I decided it was tobacco that was killing me, I cut off right sharp, and got well at once."

But he did not stop his story there. Some little time before the above events, a prominent druggist in our town had a strange affection that made him fear he was losing his mind. He kept getting worse, and he was finally unable to attend to business. He just stayed at home and brooded over the dark cloud that hung over him. He had not even the solace of sleep, for, to tell the truth, he could not even sleep nights. Now, this druggist has a father-in-law who is an old and skillful physician. Of course, the father-in-law did all he could for the patient, but all to no avail. He had already given up business, so as to have his mind free from care or anxiety, but "was nothing better, but rather grew worse," as we read in the language of Scripture. Finally, at the very urgent solicitation of his friends, he called in the physician who had recently recovered. The symptoms were but too well known to him, and he pronounced the whole trouble the result of using tobacco—nothing else. Now, this man rather thought he had not used more than three or four cigars in a day, or possibly half a dozen. The cigars were stopped, when, presto! nature proceeded to build up; reason settled down squarely on her throne, and our friend was able to take care of his business, and to enjoy life. Well, I should like to add that he, like the doctor, cut right square off. Truth, however, compels me to add that the old tyrant did not let him go quite so easily. The last I knew of the case was when I overheard him telling a friend that he could not accept his invitation to smoke, for his physician had cut him down to *only three cigars a day*—one after each meal.

Our proof-reader just now points me to an item in the *Pacific Rural Press*, for June 15. Here it is:

Dr. Hammond has a wise remark on cigarette-smoking—that laws to prevent children from smok-

ing them are impossible of enforcement; that this can be done *only by educating parents* to let tobacco alone. Nearly all the States have indulged in legislation against children. Minors must not do what they see their fathers do. The manufacture of cigarettes may be forbidden, and probably ought to be stopped, as they are, almost without exception, drugged. Dr. Hammond considers the use of tobacco a greater evil than the use of alcohol, and he has the argument with the facts.

OUR HOMES.

Thy word is a lamp unto my feet, and a light unto my path.—PSALM 119: 105.

I FOUND friend Freeborn not only a bee-keeper, but a nurseryman and fruit-grower; and, best of all, a humble follower of Christ Jesus. During my brief stay we did not have time to talk on the many subjects that were of great interest to both of us. But just before I left I found him to be a brother indeed, in more senses than one. Years ago, when the Home Papers were first started, they struck home away out in Richland Co., Wis., in a way that I should never have dreamed of, had it not been for my visit. Brother F. told me of some of his experiences, and how he had learned, in the language of our text, to say, "Thy word is a lamp unto my feet, and a light unto my path." As I look back over the years that are past since I first commenced pleading for Christ Jesus, especially since during my travels I have found a brother here and there whose heart was reached, and, may be, through my earnestness, led to that "Rock that is higher than I," I can only say, "May the Lord be praised for what he has been pleased to do with my humble efforts!" It seems strange and wonderful that I should, without having any knowledge or conception whatever of what was needed in a certain home, have sent just the message that was perhaps required to start some poor soul on the upward grade, from darkness into light.

Friend Freeborn kindly took me in his buggy off over the hills (that are really miniature mountains), to the beautiful place of his son-in-law, Mr. C. A. Hatch. Mr. H. is one of the wide-awake, progressive young horticulturists of the State of Wisconsin. I greatly enjoyed a ramble around friend Hatch's place, especially through the nursery and among the blackberries, raspberries, currants, etc. Friend Hatch has a silo, and is working in a line with all modern improvements. If I am correct, he is president of the Wisconsin Bee-keepers' Association. In a line with the bear stories that I got hold of while in California, friend H. said they had one to tell. Not very long ago, a bear, after killing several sheep and calves, came into Mr. Hatch's apiary, turned a hive over, scooped out all of the honey he wanted, then came up to the window of the honey-house, which was simply covered with wire cloth. He peeked through the wire cloth, to see what there was interesting inside, gave it a few digs with his claws, and then went on. He evidently was not particularly interested in honey-extractors, one-piece sections, and other apiarian appliances.

The bear was followed up, and killed shortly afterward.

There was a good deal of scolding when I told them that I must take the train for Green Bay in the morning. Friend Freeborn said that ever so many had been making great calculations on seeing me, and one of their ministers had planned to have me talk to some of his people, who would not listen very much to a *preacher*. I felt a great deal touched at this exhibition of his faith in my poor efforts; but it made me sad to think how disappointed this good friend of mine would be if he knew A. I. Root as well as some of his intimate friends know him. Toward evening friend Freeborn and I had a grand ramble, sampling the new varieties of berries away up on the steep hillside. Why, I should never think of using a horse there to cultivate, any more than any thing in the world, where the ground is so sloping that one fears every minute he will tip over and roll clear to the bottom of the hill. But I tell you, the *berries* grow on these hillsides. Next morning, before train time, we visited his apiary at Twin Bluffs, and saw the boys commence extracting again from the very same hives that had been emptied completely only about three days before. The station agent there was also a bee-keeper, and of course he had a friendly greeting for your humble servant. Twin Bluffs derives its name from two beautiful round-topped hills that look almost alike.

My visit to Green Bay I have already described. When that was finished I made all haste to get a steamer at Milwaukee, that I might be enabled to pass the Sabbath with my sister in Manistee, where I expected to join Blue Eyes. But, alas! with all my haste I was obliged to stay in Milwaukee over Sunday. The steamers leave every night in the week except Saturday. I tried to find out some bee-keeper or honey-dealer before night set in, but I did not succeed; and finally, tired out with the labors of the week, hungry for supper, and somewhat homesick, it must be confessed, I sought the nearest respectable hotel. Now, I did not intend to stop at the *finest* hotel in the great city of Milwaukee; but by some sort of blundering I got there nevertheless.

I am rather glad I did, however, for the Plankinton House afforded me a grand opportunity of studying humanity among the higher circles. When told their prices per day were from \$2.50 to \$5 00, I asked for the \$2.50 accommodations. Even at this price my room was a beautiful one—a good deal finer and nicer than I deserved, as it seemed to me. I made up my mind at once that I was going to see what there was particularly different in this great fine hotel from ordinary ones. Well, now, I was greatly pleased and gratified to find that, if it were not a Christian spirit that pervaded this fine house, it was something very near like it. For instance, when I first asked the clerk some questions, he very pleasantly, and without a bit of the superior air that we sometimes find, directed me to a desk adjoining his own. Here I found a good-looking man standing ready to answer all the questions that anybody might need to ask.

Not only this, he had the city directory right before him, and seemed to have learned it so as to have it at his fingers' ends. He at once spoke as kindly, and with as much interest as if he were your S. S. teacher. Besides, errand-boys were ready to do his bidding. He told me all about the churches, Sunday-schools, Young Men's Christian Association, Women's Christian Temperance Union, etc. When I asked him about A. V. Bishop he told me that Mr. B. was but a few doors away, and that a boy would go with me and see if he was in his place of business. When we found he was not, I was directed to Mr. Bishop's residence. Well, he had moved away. But our friend who is employed by this rich institution to help people—in fact, to “minister” to their wants—did not propose to give up, by any means. He found out where Mr. Bishop had moved to; but by the time we got there, no one seemed to be at home, and so we gave it up. Of course my good friend would have assisted me to make Mr. B. a call on Sunday, had I been so inclined. Of course, I did not wish to do so. However, I apologized for making so much trouble, and asked to be shown the building of the Y. M. C. A. I was assured, with a smiling face, that such was their business, and that they were always glad to assist the guests in any thing they wanted. Now, I tell you, friends, there is a moral in all this. This great firm had, without doubt, taken pains to pick out a man whose patience was almost inexhaustible, who could answer questions from morning till night, look over directories, listen to any long stories that any of the guests of the house might tell in explaining his wants, and then go to work and *help him*, in the strict sense of the word. This clerk was not an exception. The waiters all over the establishment seemed to be picked men. A bright colored boy takes your hat when you go in to meals, and when you go out he gives the right hat to the right man every time, and does it with a smiling face. When you remember that there are a hundred or more hats and a hundred or more men, you can see that our young friend must be something of a genius. He takes a good look at the hat and then a good look at the man, and I never saw him make a mistake. Perhaps these good friends were all Christians? They certainly acted Christianlike; but I am afraid it was more because they were *paid* for exhibiting Christianlike virtues than because they loved God and humanity. Sunday morning I was up between five and six as usual. My good friend had told me, the night before, that there was no place of worship open before half-past nine. At this hour there was a Methodist prayer-meeting in one part of the city; and wishing to attend as many religious services as possible, I proposed to be on hand; therefore when I had got my breakfast (there was no trouble at all in getting breakfast at six o'clock in the Plankinton Hotel) I looked around for a Bible in order to study my Sunday-school lesson. Well, our obliging clerk, who knew the directory from beginning to end, and who could have furnished

me any thing to *eat* or *drink* that can be found in almost any part of the world, was stumped when I asked him for a Bible.

“Why, my friend, there are probably Bibles in the house somewhere, but I do not know just where to put my hand on them at this hour. I have one at home that my mother gave me, that would be most cheerfully at your service if I could get it just now. But as it is, I do not know what better we can do than to wait until the Y. M. C. A. is open at half-past ten.”

When I was at Woodman, the storekeeper that was offended at my plain talk, said that, if nobody patronized the saloons, there would not be any. He rather threw it in my teeth. This good friend here said it very kindly, but he rather intimated that few people ever called for Bibles at half-past six on Sunday morning; but that if they did, the proprietors of the hotel would certainly have had them in abundance. In fact, they make it one of the *fine* arts to minister to the *wants* of the great sea of humanity that is found in our large cities. I was a sort of eccentric or peculiar individual, or I should not have wanted a Bible—I was going to conclude this sentence by saying, “at such an unseasonable hour;” but my good friend to whom I am dictating was going to put in, when my attention was called to other matters for a moment, “before most men wanted their every-day garments.” Now, I would have cheerfully given the price of a good Bible for the use of one for just those two or three hours. My friend at the desk suggested that I could probably get one at the bookstores; but I told him that the bookstores that were open on Sunday would not, on general principles, *have* Bibles to sell. I did not go out on the streets and try it, for you may remember that it is not very many months ago that a good friend gave me quite a smart reprimand for patronizing people who do sell things on Sunday. While doing every thing I could think of to keep the Sabbath holy, without a Bible, my thoughts ran in the line of our text to-day. May the Lord be praised that I *have* found the word of God “a lamp unto my feet and a light unto my path”! If I could not have a Bible, I concluded I would go real early to the Methodist prayer-meeting, and so I started off a good deal before the time. My good friend the clerk told me how many blocks it was away, but I did not think very much about “blocks.” When I neared the great Trinity Methodist church I felt glad to know that such large numbers of people were, like myself, going to the prayer-meeting. From their talk, however, I judged they were not just the kind of prayer-meeting people that I had been in the habit of meeting.

When I *first* came into Milwaukee I noticed some great showbills telling by pictures, as well as by great big letters that some girls were going to play a game of base ball. I now noticed that this game of base ball was to come off on Sunday. The girls who were to play were to be rigged out like ballet-dancers; and as we neared Trinity church, the number of pictures in regard to this game of base ball became

more frequent than ever. When we came to the church, the streets were literally filled with crowds; and then I discovered that the game was in a park a little beyond the church. I had been, for a mile or more back, in with the crowd of Sabbath-breakers, going to see girls play base ball on God's holy day. With a sad heart I reached the church. Its doors were not open, and I sat down on the steps. Nine o'clock came; quarter-past; then half-past. Not even the sexton came to open the doors of the magnificent structure that the worshipers might go in. The crowd still surged past to the ball-grounds, and finally *two women*, but no men, came to prayer-meeting. I could not help thinking then of the time when all the world had given up and lost faith in Christ Jesus, our Lord and Savior, and only a couple of women came in the early morning to perform the last rites to his dead body. It just then occurred to me that I was then so far away from the Congregational church, where I proposed to attend preaching, that I could not get back in time, even by the aid of the street-cars. But by inquiry I found there was a small Congregational church not far away from the Trinity Methodist church. I reached there in good time, only to be told that, for some unaccountable reason, the minister had failed to come. Where was the sexton? and where was the leader of that Methodist prayer-meeting at half-past nine? Where, too, was our Congregational minister at half-past ten? Now, don't be hard on me, dear friends, if I did wonder just a little whether it was not possible that these brothers had caught the infection, and gone with the rest of the multitude to see *girls* play base ball. By the way, is it customary to have base ball on Sunday? How is it where you live? May God forbid that this custom should ever get to be common; and a thousand times more may God forbid that the other sex should take up the game on that holy day—the sex that we have been taught from childhood up to regard as a model of every thing that is pure and holy. May be I am finding a good deal of fault with the city of Milwaukee; but I do feel that it was a burning shame that the good people of that city should allow at least a great portion of it to be hung with posters as it was on that pleasant Sabbath morning—posters that were *conspicuous* because of the display and *prominence* that was made of the bare legs of the women or girls who were going to play base ball.

I am now going to tell you what I found in Milwaukee that was *good*. The Sabbath-school in the little church I have mentioned was well attended, and a true Christian spirit seemed to pervade every heart. My heart went out in love to the dear brother who conducted the Bible class, wherein I found a place. His voice betrayed a slight foreign accent; but his words, that came from the very depths of his heart, showed unmistakably that he was intimately acquainted with the dear Savior. The Y. M. C. A. building is one of the finest edifices I was ever in. I think I have been told that it cost something like a *quarter of a million*

of dollars, and that there is perhaps no other Y. M. C. A. structure like it in the United States. The address to the young men was most grand, and fully up to the times. The city is one of the neatest, cleanest, and prettiest that I have ever visited. The rooms of the W. C. T. U. were in plain sight, right across the street from the Plankinton Hotel, and I intended to call there; in fact, I did think of applying there for a Bible; but I was a little timid about going out, even on such an errand, so early on Sunday morning. I suppose that Milwaukee is as well supplied with Bibles as perhaps any other city, and perhaps there were thousands that very morning who would gladly have extended to me the family Bible, had my wants been known. The absence of worshipers at the places of worship may perhaps be explained by the fact that my visit was about the season when many ministers take their vacation. But I tell you, dear friends, it seems as if we ought to bear in mind the fact that Satan *never* takes a vacation; and I should not be at all surprised if he plans his work and masses his forces so as to make his very biggest hits just about vacation time of the church and Sunday-school. The thought of the little ones being led by their parents toward that base-ball game on Sunday morning still haunts me—those little ones rigged out in their Sunday best, and in tiptop trim for Sunday-school—little ones ready to be led to Sunday-school, or ready to be led into the very clutches of the evil one. Dear brother and sister, how is it with you? and how are you leading *your* children? Do they know, and have they already learned, that God's word is a lamp unto *your* feet and a light unto *your* path?

OUR OWN APIARY.

CONDUCTED BY ERNEST R. ROOT.

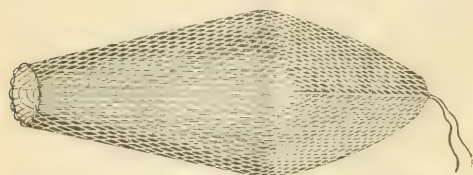
RAISING CELLS A LA DOOLITTLE.

DURING the last few weeks we have been raising, or, rather, completing cells, in the upper stories, above perforated zinc, of two or three strong colonies. The plan is a success after cells have been given them already started. Although we anticipate doing so soon, we have not yet made the little cells with the rake tooth, described in Doolittle's book, and giving the same, when filled with larvæ, to the Doolittle upper stories, as we call them. So far we have been selecting here and there cells started, and which have already in them the larva and its royal food. These have been stuck on to the combs in the Doolittle upper stories. In process of time they were built out nicely, and completed. At first our Mr. Spafford thought they were larger than cells built in queenless colonies; but now he thinks he sees no difference. Those cells that I examined were very nice, but I did not think them any larger than cells built in queenless colonies. But more anon on this subject.

THE DOOLITTLE QUEEN-CELL PROTECTORS.

Some years ago we illustrated and de-

scribed the Doolittle device as above. Later, having tested them, we gave a report as to their workings. This report was rather unfavorable. During the latter part of this summer we have been using them again; and where colonies seem determined to tear down cells, they are no doubt a good thing. Our Mr. Spafford says he does not know how we could get along without them, in some cases. When we first tried them, they seemed to be more the *cause* of cells being torn down than an actual protection; but we now know that we did not insert the cells properly. Some of the readers may have forgotten just what these protectors are, and I here reproduce an engraving which we gave a couple of years ago.



THE DOOLITTLE QUEEN-CELL PROTECTOR.

To put in the cell, insert it so that the apex will close the mouth of the protector. It should also retreat a little from the outside edge. Twist the strands of the four corners together, and push it down between the brood-combs. When bees tear down cells they usually make a hole in the side, and rarely attack the end of the cell where the queen gnaws out. As the bees can not get at the sides of the cells, the queen is allowed to hatch when she pleases. One very pleasant thing about these cages is the fact that a cell in one of them is protected from the careless handling of the apiarist. It can be crowded down between the combs, and when the hive is opened again after the lapse of a couple of days, to see if the cell is hatched, the frames can be pulled apart without danger of tearing open the cell. The protector can be lifted out; if the cell is not yet hatched, it can be reinserted between the combs.

A QUEEN - EXCLUDING HONEY - BOARD AS AN ANTI-SWARMER, OR QUEEN-TRAP.

On page 637 of the issue for Aug. 1, in my answer in the Question-Box department, I incidentally mentioned the fact that we had been using a queen - excluding honey-board between the brood-nest and the bottom-board, for the purpose of preventing the queen from going forth with the swarm. Although the idea was original with me, I did not at the time so state it, because I felt quite sure that some one else had antedated me in something so obviously simple and suggestive, in the style of a hive such as the Dovetailed. By an article which we publish on page 669 you will see that Mr. James Heddon tried the same thing in 1884, or earlier. Since that time Mr. John H. Howard, of Holme, near Peterboro, England, a supply-dealer, and a well-known writer for the *British Bee Journal*, writes that we have been using the honey-board in the combination above named, without giving him credit, and says that he used the same thing in

1886, and has since been granted a patent on it in Great Britain, and intimates that he may patent it in the United States. If friend Howard will turn to page 669 he will see that Mr. Heddon has antedated him by two years, which entirely sets aside his getting a patent on the same in the United States; and, if I am not mistaken, it would render the one in Great Britain useless so far as giving him the exclusive use of it is concerned. Now, I should not be at all surprised if some one had used the same idea earlier than 1884. I do not bring this thing up here to provoke controversy, but simply to show that, when we think we are original in a thing, we are pretty apt to be mistaken in these days of progressive bee culture. Please read our comment in reply to A. A. Fradenburg's article, in another column, in regard to priority and early use of raising queen-cells in the upper story of a colony already possessing a queen.

BEES WORKING ON JAPANESE BUCKWHEAT; PHOSPHATE.

For some reason or other, reports have seemed to indicate that the bees pay more attention to other varieties of buckwheat than to Japanese. One of our lady beekeepers, a Mrs. Shane, of Chatham, Ohio, had four acres of Japanese in bloom. Her apiarist told me that the bees fairly swarmed on it during the morning, and sometimes even during the afternoon. By an accident, a part of it was phosphated and a part not. The former was in every way superior to the other. Neighbor H. had some 20 acres near our basswood apiary. He said the bees were working upon it very heavily. He phosphated a part of it, and the rest was put in without phosphate. Bees were working altogether the best on the phosphated. I went down a couple of mornings to see the bees at work; but before I got around to go down, the weather became so dry that but very few bees were upon either patch, although the piece with the phosphate showed some few bees. The stalks on this piece of buckwheat, I should say, were on the average twice as high as the stalks on the other piece without phosphate.

ANOTHER RED-CLOVER QUEEN.

In our home apiary we have a genuine red-clover queen. She is, I think, fully equal to the one which we had several years ago, that showed such remarkable qualities. While the other colonies in the home apiary have been doing little or nothing lately in storing surplus, the bees of this red-clover queen have been storing honey from red clover in the sections right along. There has not been a day, I think, but that they have been busy. Day before yesterday we took off 50 lbs. of section honey, a large portion of which was from red clover. Desiring to raise some queen cells, we took out two of the brood-combs and inserted a couple of empty ones in their place. Before the queen could deposit an egg in either of them, her bees crammed them full of honey, and this during a time when drouth has been prevailing for almost a month back. The worst part of it is, the queen is already two years old. We shall do all in our power

to preserve her as long as possible, and in the mean time will give her an ample opportunity to raise drones, so that the latter will infuse their blood into some of our own home-bred queens. We shall also commence rearing queens from her. Although not an imported queen, she is a daughter of one. She is not very light-colored and her workers are not extra yellow, although having the three characteristic yellow bands.

OUR MINORCANS.

A couple of months ago, Mr. F. C. Andreu, of Port Mahon, Spain, editor of *Revista Apicola*, sent us a Minorcan queen. The bees have hatched out, and some of them are now a month old, so that we have an opportunity of judging somewhat of their disposition. They are nervous, and rather more vindictive than Italians. The queen is exceedingly prolific. The Minorcan bees themselves are black, and look very much like the common blacks of this country. They might also be easily taken for Carniolans, both in color and in general disposition, although I think the Carniolans are not quite so nervous. I will report further in regard to them later.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

MAKING GARDEN IN SEPTEMBER.

JUST as soon as it begins to be cool weather, I begin to feel an unusual interest in all sorts of gardening that can be done in the fall. Some way or other—I can not exactly tell why—the mellow soil has a wonderful fascination for me just before frost comes, or perhaps a little after frost. At this season of the year, ground that has been tilled is usually in fine nice order; and it has always seemed to me too bad to let it lie idle. Then the question comes up, What is there that we can plant and nurse and care for in the months of September, October, and November? What is there to look fresh and green and thrifty, that frost won't harm? Well, so far as planting seeds is concerned—that is, planting to do any good—our list is a rather small one. Just as soon as any crop is finished and done for, I want to see the ground cleared off, and have something take its place. What can we plant, as one crop after another disappears. At first I was going to say there are only two things that will stand the severest weather here in Ohio. These two are rye and spinach. Spinach, with us, stands just about as severe freezing as does rye. The first is a profitable crop to raise, and can be sold in the winter at any time when there is a thaw; therefore I would have plantings of spinach every week or ten days. Just now is perhaps a good time to start spinach to be wintered over. Rye is sown only to be turned under in the spring, for no one presumes a market-gardener is going to make it pay to raise rye. Well, there is another thing. The winter onions may be planted this month or next, and they will come right up

and grow, and seem to do all the better when the weather gets colder.

Oh, yes! there is still another thing that you can plant, and plant largely, during this month and next, and you can manure the ground and fertilize it, and work it up fine to your heart's content, and with a pretty good prospect of making it pay too. Shall I tell you what it is? Why, *strawberries*. They will grow and send out runners for two months yet, and the frost just makes them handsomer, until it gets to be *severely* cold; and even then, if there is a tolerable covering of snow, they do not seem to be hurt any. Strawberries are my special favorites in these fall months. You have plenty of time to pick off the runners as fast as they appear, and loosen the dirt around the plants, and give them liquid manure. I know some writers say you should not encourage a rank, strong growth late in the fall; but I have never seen a bit of bad effect from it. The plants that I fairly covered up with little chunks of manure, so that when a shower came, the water all around them looked like green ink, gave the biggest crop the next season, of the biggest berries. I do not believe you can hurt a strawberry by excessive stimulating, no matter when you do it. In getting plants for sale, our boys have been in the habit of laying a little lump of dirt or a stone on the runner, to keep it where they wanted it, I saw them at it, and said, "Why, bless your hearts, boys, don't use stones or lumps of dirt. Just get a wheelbarrow full of chunks of rich manure, and lay a lump of manure over each runner, close to the embryo plant."

GARDENING UNDER GLASS

The one who learns to love to see plants grow, will, as frost approaches and increases, very soon begin to feel a longing for some sort of protection. Cucumbers, tomatoes, and ever so many other things, run up in price very quickly when frost appears. Something to keep the frost away will often prove a good investment. Cloth frames answer very well until snow comes. When you begin to get snow on top of your cloth, it is a nuisance. Then you must have wooden shutters, or, better still, glass. Just now thousands are turning their attention to cold-frames, or cold-frame greenhouses to be warmed in different ways. A cold-frame greenhouse is one so made that one can go inside of it. Now a word in regard to setting glass. For the past year we have been using the Ives putty-machine, advertised in our floral and gardening periodicals. With this the putty is diluted with good white paint until it can be forced out in a liquid form, where the glass touches the sash. Dry sand is then blown on the sticky paint as long as the paint will hold it. When dry it is as hard as stone. Now, the Ives putty-machine costs \$1.50; but we decided it was well worth four times the price, because of the saving of labor in setting the glass. One of our boys happened to be in the counter store, and picked off from the 15-cent counter what is called the Atlas insect-powder gun. This is made for blowing pyrethrum or any other powder on the insects. It is

simply an oval rubber ball, with a nozzle attached to one end. By cutting off the strainer from the large end of the nozzle, we had a putty machine all ready for use. Mix your paint and putty just right, fill the rubber ball, then by squeezing the ball you can send a stream of the liquid paint exactly where you want it. Two of our men decided at once they could work faster with the 15-cent machine than they could with the \$1.50 machine. This insect-powder gun can be sent by mail at an expense of only 4 cents for postage.

SAVING TOMATOES FOR SEED.

In answer to several questions, you may save the seed from any tomato that pleases you; and even if you have a dozen varieties in the same row, there is no danger of mixing—at least I have been told so by the experiment-station folks. The present indications are that the *Ignotum* tomato-seed will command a big price next season—perhaps \$1.00 or \$1.50 an ounce; therefore you had better save every seed. To save the seeds, just scoop them out of the tomatoes before you cook or can them; set them in a bowl or dish, with a little water, in some warm place, until the whole mass gets sour. When it is sour enough to begin to smell bad, the seeds will wash out as clean and handsome as you please. Spread them on plates or boards to dry, and that is all there is to it.

COLD-FRAME CABBAGE-PLANTS.

If you are going to have some sash, or even wooden shutters, to cover your cold-frames, this is the month to sow your Jersey Wakefield cabbage-plants. It is often said, that just as good plants can be obtained by sowing them in the greenhouse in February; but my opinion is, that, even if we can, we do not often succeed in getting them. Plants properly wintered in cold-frames may be planted out just as soon as the ground can be worked, even in the latter part of March; and as they have already been frozen up hundreds of times, freezing does not hurt them a bit; and your first cabbages will, as a rule, be from the cold-frame plants. Start them about the middle of September, and get nice plants, just as you would do in spring. In order to get a good stand—that is, just as many and no more than can occupy your cold-frame, you *must* transplant them. They also want to be in the ground clear up to the first leaves, and you can not secure this without transplanting.

THE KUMERLE LIMA BEAN.

The Henderson lima bean is now ready for the table, and some of the pods are ripe and dry. It is all right, except being so small. Its size, in my opinion, is going to rule it out. We are glad to report, however, that the Kumerle has proved to be very prolific, and many of the beans are ready to shell. The probability is, that most of them will escape frost. The Kumerle is a real *honest* bush lima bean: the Henderson is not, for the reasons above given.

400 BUSHELS OF POTATOES TO THE ACRE.

I have this season succeeded in getting over 100 bushels of potatoes from a quarter of an acre. They were Lee's Favorite. At

an expense of 3 cts. per bushel they were dug, picked up, and stored. In my next I will tell you how I did it.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, SEPT. 15, 1899.

Thy testimonies have I taken as a heritage for ever: for they are the rejoicing of my heart. —PSALM 119: 111.

FRENCH, GERMAN, ENGLISH, AND AMERICAN BEE-KEEPERS.

OUR proof-reader, in glancing over foreign exchanges for August, found the following in the *Schweizer Bienenfreund*, from the pen of Mr. T. Kellen, of Luxemburg. Mr. Kellen writes from Paris, in regard to the apicultural display. After describing the American exhibit he says:

This American display is the most noteworthy, practical, and beautiful of all that Americans have till now produced. An enumeration, with a short description of all the hives, implements, products, etc., would fill several volumes. Whoever would describe the same must needs write a complete handbook of American apiculture; and that is something that Europeans still lack. The English and Americans have noticeably surpassed the German bee-keepers (not to speak of others) in many respects. They may at first have learned many things of Germans, I admit; but they have learned how to apply science, and do not remain stationary. To-day can the German and Frenchman go to the English and Americans for instruction. Already what belongs to bee-lore, the Europeans can no longer measure with the Americans. It will be a long time before we in Europe shall have such a work as Root's A B C book, or Langstroth's. The only one, till now, worthy of notice, on this side of the ocean, is Gravenhorst's; and as opposed to that we have numberless works and "worklets;" and the most wonderful part of the whole is, that such books have ever seen the second and third edition.

A VISIT FROM J. W. JENKINS, OF JAMAICA, W. I.

We have just had a very pleasant call from our Jamaica correspondent, Mr. J. W. Jenkins, of Providence, Jamaica, who for three years back has been laboring as a missionary among those semi-civilized people. The island, on account of the interference of various nations, has been drained of its wealth, and the people are almost poverty-stricken. Mr. Jenkins become interested in apiculture, and at once began bee-keeping in his missionary field. His idea was to teach the natives a new source of income; and thus while he was ministering to their spiritual wants he could at the same time give them the means to administer to their own bodily wants. The bees of the island are black, and the honey resources are almost unlimited. Mr. Jenkins is sure that apiculture can be made a profitable means of livelihood, and he is very anxious that the natives have a start in this line. While they have no wintering problem to contend with, they have various species of ants which are very fond of honey, and which, unless checked, would in time prove the total destruction of the colony. To

prevent their depredations, the hives are placed on benches, the legs of which stand in zinc pans of water. There is a species of black ant, which, although very small, will in time rob a colony of its honey. One colony was put upon the ground; and it was a very noticeable fact, he says, that this colony was not doing as well as those upon the benches, the little black ants having visited it so much that its stores were reduced to almost the daily gathering. There is a species of red ant there which is much worse. They will come in droves; and if their nest happens to be at a distance from the hives, they will move into quarters in the immediate vicinity of the bees. From here they will continually sap the colonies until they have, from the ill-gotten stores, become so strong that they will in a single night destroy the colony upon which they have been preying. In most tropical countries these various species of ants are one of the greatest hindrances to bee culture. Our friend A. A. Bunker spoke of their untiring depredations in Burma on his visit to Medina.

PERSONAL LETTERS TO EDITORS WHO PUBLISH FALSE STATEMENTS.

SINCE our article on page 620, of our August 1st issue, urging bee-keepers themselves to write personal letters to offending editors, one of our subscribers has taken up the gauntlet in the following pointed paragraph. He says, in writing to the *Pittsburgh Dispatch*:

In your issue of Sunday, August 25, appeared an article on impurities in sugar by Chevalier Q. Jackson, M. D., in which he undertakes to describe American ingenuity in the manufacture of comb honey. I was greatly surprised on reading this portion of the article, for I had thought that Dr. Jackson prepared himself on the subjects which he wrote, before submitting them to the reading public.

I am convinced that he is mistaken in his statements. If he is not, he should prove their truth and claim the \$1000 reward offered by Mr. A. I. Root, of Medina, O. The latter gentleman stands pledged to pay that amount "to the person who will furnish evidence that comb honey has been manufactured, filled with honey, and capped by machinery; or who will furnish information of any place where comb honey is manufactured by machinery." The *Encyclopedia Britannica* made the same error in an article on "glucose" in its American supplement; but on being notified by Mr. Root, the publishers wrote that they had started an investigation and found that the author "had not as good grounds for his assertion as he should have had."

Those who write to instruct the public should not take hearsay statements and tell their readers they are so.

J. B. BLACK, M. D.

Duncan, Pa., Sept. 7, 1889.

That's right, doctor. This is just the way to do up these falsehoods. Editors will publish a correction, brief and courteous, when they will not notice a reprint from a bee-journal. Let more of our subscribers follow the matter up.

GREAT IS TRUTH, AND WILL PREVAIL; THE NEW YORK WORLD IN DEFENSE OF BEE-KEEPERS.

WHILE hundreds of daily and weekly papers have been slandering the comb-honey business by alleging that the article was manufactured and "deftly filled by appropriate machinery," one large daily, without any solicitation from bee-keepers, has come out and stated the honest truth. The daily to which we refer is no less than the *New York World*, which by all odds is the largest daily in the United States, and perhaps in the world. This is the clipping, which has been sent us by one of our subscribers:

HOW HONEY-COMBS ARE MADE.

Helen of Troy, Sea Cliff, L. I.—"Can you tell me

whether honey-combs are always made by bees, or are there such things as patent ones?"—"Honey in the comb is always made by bees and never by machinery. When you buy honey in that shape you may feel quite certain it is the genuine article, and that there is no patent on it. Comb foundation made of beeswax is in quite common use. On this the bees form the cells, fill with honey, and cap them.

If this is not coming out "square-toed" in favor of our much-abused industry, then we do not know what better we could have. We desire, in these columns, to thank the editor of the *World* for taking the pains to find out the truth of the matter, instead of copying the slander, which has no foundation. Now, why can't the editors of some of these smaller dailies be just as eager to copy this truth as to scatter broadcast the lying statements of some smart reporter, or the statement of some other periodical? If the *World* is as careful in other things as in this one, no wonder it has the largest circulation, and it deserves it. Give the *World* a boost, every chance you can get, so long as it sticks by the truth; and give the go-by to papers that persist in publishing falsehoods about comb honey. If more bee-keepers would stop those papers that come into their homes, which have maligned our industry, and refuse to make amends, it might help to open the eyes of these editors who have "not time to investigate the truth," but take slander because it is cheap.

Since the foregoing was written, the following item, clipped from the *Family Herald and Weekly Star*, of Montreal, Can., has been sent in. It reads as follows:

ARTIFICIAL COMB HONEY.

The *Family Herald and Weekly Star* recently published, under the heading "Curious Facts" a statement copied from an American paper, to the effect that artificial honey had been made of potato starch and oil of vitriol, the comb being manufactured out of paraffine wax. The item referred to has been going about in the American papers for some time, and the author of it is alleged to be Professor Wiley, of the United States Agricultural Department. Mr. Stewart, of Nairn, Ont., writes that he is willing to give one hundred dollars, and that A. I. Root, of Medina, Ohio, will give one thousand dollars to any one who will show them artificial comb honey and tell them where it is manufactured. But Mr. Stewart and Mr. Root are likely to keep their money, for there is no doubt that they are right. The statement that artificial comb honey has been successfully produced from potato starch, oil of vitriol, and paraffine wax, is not worthy of credence. However, even if the statement were true, it would not in any way reflect on the bee-keepers, who are, undoubtedly, a most conscientious and upright class of persons. Even those who believed the item was trustworthy would not suppose that the artificial honey was made by bee-keepers any more than they would suppose that the oleomargarine substitute for butter was made by dairymen or farmers' wives. If such artificial honey could be made it would come into competition with the bees and bee-keepers just as oleomargarine comes in competition with honest butter and those who make it.

Good for the *Star*! Give it a boost, ye Canadians! Let's patronize the papers that tell the truth about our industry. Let more papers follow suit. Surely truth will triumph in time, but we must keep fighting the falsehoods, and that, too, by personal letters from bee-keepers.

And here comes the *Maryland Farmer* for September, with a good square contradiction in regard to artificial comb honey. Friends of the *Maryland Farmer*, here is our hand; and we hope every bee-keeper who lives in your vicinity will express his thanks in the shape of a dollar for your magazine, for one year at least.

A GOOD REPORT FROM DR. MILLER.

Friend A. L.: I don't know how many times during the last few weeks Mrs. Miller has said to me something like this: "Why don't you write a note to Mr. Root, telling him of your success? He seemed much pleased and interested when here, in the honey-flow you were getting." Well, you know that at the time you were here the bees were taking a fresh start at storing. Since that time they kept it up straight along, although rather slowly, still without stop, till last week, about Sept. 5. So I have taken 11,000 or 12,000 lbs. of honey, and have sold it, and am now crowded to get it ready for shipment. You're glad, aren't you? C. C. MILLER.

The above came in a private letter; but I am sure the doctor will pardon us for letting some other friends of his have a glimpse at it. To be sure, we are glad, old friend.

SENDING BEES BY THE HALF-POUND THROUGH THE MAILS.

Our good friend Pratt, of Marlboro, Mass., has actually succeeded in doing it; yes, even where the bees were missed, so as to be out four or five days, instead of two, and they came through with only two or three dead bees. Full particulars are given in the *American Bee Journal* for Sept. 14. Now, while we are pleased to hear of the success of this experiment, we are greatly troubled, for fear the postal authorities may not only rule out bees by the half-pound, but bees and queens. In fact, queens have been sent us repeatedly in such shape that I would not blame the department for shutting down on us. If friend Pratt is permitted to send half-pounds through the mails, other bee-keepers must of course have the same permission; and perhaps not one in a thousand is as well able to put up their bees as is friend Pratt. I do not exactly see how half a pound of bees can well be put up so that the package may not be smashed by some accident; and one such smash-up would perhaps finish the business for us. As Prof. Cook was instrumental in getting queens through the mails when they were once cut off, I should very much like to know his opinion in regard to the matter. Friend Doolittle, who writes the matter up, as well as the editor of the *American Bee Journal*, do not either one seem to apprehend very much trouble in the matter. Besides, sending this trial package through the mails is, if we are correct, a direct violation of our present laws. We have this week received through the mails a glass bottle containing a full half-pint of honey. It did not get broken, but it is a wonder. Friend Doolittle suggests that the powdered sugar rattling down in the mail-bags would be an objection. So far as that is concerned, grinding the sugar in a paint-mill, or otherwise, so that there are no grains at all, will, I think, fix that part of it. Sugar and honey ground together would be like paint or cream. In that state, I feel sure the bees would eat every particle, both of sugar and honey.

SPECIAL NOTICES.

WINTER ONION-SETS.

These will do nicely if planted now. Price 10c per quart, or 75c per peck. If wanted by mail, send 10c per quart extra.

GRAND RAPIDS LETTUCE.

Now is the time to plant Grand Rapids lettuce in the open ground, so as to have fine strong plants for setting in the greenhouse. It is economy to have them make as much growth as possible outdoors, on account of the comparative cheapness of the ground and the saving in expense of watering, airing, etc. With a little rude protection you can get very nice lettuce Thanksgiving and Christmas from seeds planted in the open ground.

STRAWBERRY-PLANTS IN SEPTEMBER.

Since our bountiful rain we are fully supplied with the very finest, well-rooted strawberry-plants,

grown on our river-bottom. We can furnish Sharples at 10 cts. for 10; 50 cts. per 100, or \$4.00 per 1000; Jersey Queen and Jessie, 10 cts. for 10; 75 cts. per 100, or \$5.00 per 1000. At present writing we place the Jessie ahead of every other strawberry we have ever had, for general purposes. The new Bubach, we have not tested as thoroughly as we have the Jessie; but so far as we have tried it, it gives great promise. Prices of the Bubach, 15 cts. for 10; \$1.00 per 100, or \$7.50 per 1000. The latter is perhaps the largest berry we have ever had any thing to do with; but when ripe it is very soft, and must be handled carefully. By using pint boxes, however, and getting them before customers pretty quickly after they are fully ripe, you can get along very well. If you are having rain, I do not know any better month to set out strawberries than September. We have been obliged to increase the postage on our strawberry plants, because they are so much larger and heavier than any we have ever before raised. If wanted by mail, add 5 cts. extra for 10, or 20 cts. for 100.

DISCOUNTS TO THOSE WHO ORDER GOODS FOR NEXT SEASON'S USE NOW.

According to our usual custom, we offer the following discounts for early orders. The reasons for this are many, and the reasons why you should take advantage of our offer are many more. Our main reason for making the offer is to divert as much as possible of the trade out of the very crowded months of the spring into the fall and winter, and thus equalize business as much as possible. If you know pretty well a large part of your next spring's needs, you should, by all means, anticipate these needs for these reasons, and many more that might be named.

1. It is to your profit, if you have the money to invest, both in the first cost of the goods and in the economy in preparing them for use. You can nail your stuff together more economically in the winter time, when there is not much else to do, than at any other time. Hives painted in the winter will become thoroughly dry by the time you are ready to use them, and will last much longer.

2. By anticipating your needs you can give the goods ample time to reach you by freight. Time and again the past season, customers have sent large orders for goods by express, and said they knew the charges would be high, but they could not wait for freight; they "must have the goods at once." These high charges might have been saved by a little forethought.

3. By ordering early you avoid the danger and worry of having your orders delayed, and the risk of losing a large part of your honey crop thereby. The past season, as near as we have been able to learn, all supply-dealers were more or less behind on their orders. This is no more than should be expected with such an unusual demand. Our goods, from their nature, being bulky, it is manifestly impossible to stock up sufficiently to meet such a demand, and it is also impossible to meet the demand by extra help and machinery, because competent help can not be had in a day, and the extra work must necessarily be of poor quality. The easiest and most sensible way out of the difficulty is for you who know your needs to have them supplied ahead; and if you haven't looked far enough, and should want more goods in the spring in a hurry, we will try to remember how you helped us out, and will in return give you as prompt attention as possible.

We have decided on the following discounts, which are sufficiently liberal to make it a profitable investment for you, and the discounts will apply to every thing in our catalogue ordered for next season's use. They can not, of course, apply to large orders for counter goods or honey-packages; but if only a few of them are included with an order for hives, etc., then the discount may be taken from the whole bill.

Up to November 1st, discount will be 5 per cent. After that date, one per cent a month for each month before March; i. e., 4 per cent in November, 3 per cent in December, 2 per cent in January, and 1 per cent in February. One per cent a month is equal to 12 per cent per annum, and money can be had in most places for 6 and 8 per cent, so that you see that, although our offer is not quite as liberal as formerly, it is still profitable, and we trust that many of you will find it to your advantage to avail yourselves of it. Remember, our discounts for large orders on page 2 of catalogue are applicable in addition to above discounts.

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CONVENTION NOTICES.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary.
R. F. HOLTERMANN, Sec'y.
Brantford, Ont., Can.

The Northwestern Bee-keepers' Society will hold its annual convention at the Commercial Hotel, corner of Lake and Dearborn Sts., Chicago, on Friday and Saturday, Oct. 11 and 12, at 9 A.M. Arrangements have been made with the hotel for back room, one bed, two persons, \$1.75 per day, each; front room, \$2 per day, each person. This date occurs during the exposition, when excursion rates on the railroads will be one fare for the round trip, good from Oct. 10 to 14, inclusive. There has been a fair crop of honey in the West, and an old-time crowd may be expected at this revival of the Northwestern from its "hibernation."
W. Z. HUTCHINSON, Sec'y.

Wants or Exchange Department.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars.
CHAS. DADANT & SON,
187dd
Hamilton, Hancock Co., Ill.

WANTED.—To exchange good Italian bees for a good foot-power saw.
W. S. BISEL,
19d
Atchinson, Kansas.

WANTED.—To exchange for honey, a Given fdn. press, with L. size die-book, and wax-boilers and dipping-boards for same. H. D. BURRELL,
Box 386, Bangor, Van Buren Co., Mich.

WANTED.—To exchange 2 canary-bird singers for any thing we can use in our home.
HELENA AND CHARLEY SNYDER, Orion, Wis.

PUBACH, Jessie, Warfield, Hoffman's Seedling, B May King, and Crescent strawberry-plants, cheap, in exchange for comb or extracted honey, sections, or beeswax. Plants true to name.
Write to E. T. FLANAGAN, Belleville,
Box 995, St. Clair Co., Ill.

WANTED.—To exchange 10,000 Cuthbert raspberry-plants, for sections, foundation, or extracted honey. I will give a bargain on the above plants.
19-20d P. D. MILLER, Grapeville, Westm'd Co., Pa.

WANTED.—To sell my hive-factory and bees, or one to take charge of the business. A good chance for one understanding the business. For further information write to
P. L. VIALON, Bayou Goula, La.

WANTED.—To exchange bees, for top-buggy, road-cart, surgical or dental instruments, watch or clock.
DR. CORYA, Moore's Hill, Ind.

WILL exchange Elgin watch for World type-writer. E. HOSTETLER, East Lynne, Cass Co., Mo.

WANTED.—A situation with an apiarist, for any length of time. Will give good reference; will go to any part of the United States. For further particulars address S. W. WHIT, Box 179, Liberty, Mo.

Black and Hybrid Queens For Sale.

A few hybrid queens at 30 cts. each.
M. ISBELL, Norwich, Chenango Co., N. Y.

I have about a dozen mismatched Italian queens, which I will sell at 40c each, by return mail.
J. M. KALE, Newton Falls, Trumbull Co., O.

Twelve black queens, at 25c each. I guarantee satisfaction.
C. H. EHLERS,
Pleasant Valley, Scott Co., Iowa.

I shall have 30 or 40 black queens between this and the first of November, that I will sell at 15c, if any one wants them.
W. T. LYONS,
Decherd, Franklin Co., Tenn.

Italian hybrid queens for sale at 22c each. Young and prolific.
J. H. HONCH,
Middaghs, Northampton Co., Pa.

The Secrets of Success in the Growing of Small Fruits

Gives you the benefit of several years' experience in growing berries for market, together with my illustrated catalogue and price list of berry-plants; sent free on application. Now is the time to set strawberries for next year's fruiting. Jessie, Cloud, and other new varieties. 16-19db

I. A. WOOLL, Elsie, Mich.

In responding to this advertisement mention GLEANINGS.

BEE-KEEPERS AND FRUIT-GROWERS,
Send for my price list of
BEE-KEEPERS' SUPPLIES AND STRAWBERRY-PLANTS.
Twenty-five varieties to select from.
Address F. W. LAMM,
Box 106, SOMERVILLE, - BUTLER CO., OHIO.
18-23db

NOTICE.—I have just received a shipment of imported Carniolan queens from Frank Benton, and the 1st of Oct. look for a shipment from Michael Ambrozic, Austria, Europe.
J. B. KLINE, 924 Kansas Ave., Topeka, Kan.

Crawford's Folding Paper Boxes

For Inclosing Section Honey.

THE BEST BOX FOR THE LEAST MONEY!
\$5.00 Per 1000

and less, according to quantity. Send for sample and price list. A. C. CRAWFORD, S. WEYMOUTH, MASS.
In responding to this advertisement mention GLEANINGS.

HOME EMPLOYMENT.—AGENTS wanted everywhere, for the HOME JOURNAL—a grand family paper at \$1 a year. Big cash premiums. Sample FREE. THOS. G. NEWMAN & SON, 923 & 925 West Madison Street, - CHICAGO, ILLS.

Bees & Poultry

The Canadian Bee Journal and Poultry Weekly is the best paper extant devoted to these specialties. 24 pages, WEEKLY, at \$1.00 per year. Live, practical, interesting. Nothing stale in its columns. Specimen copies free. Subscribers paying in advance are entitled to two insertions of a five-line adv't (40 words) in the Exchange and Mart column.
THE D. A. JONES CO., BEETON, ONTARIO, CAN.

SPECIAL NOTICES.

SPIDER-PLANT SEED WANTED.

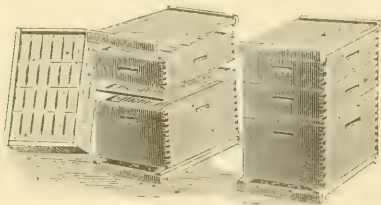
Have any of the readers of GLEANINGS any fresh seed for sale? If so, tell us on a postal card how much, and what you want for it, delivered here in Medina.

GILT-EDGE EXTRACTED HONEY.

On another page of this number you will find an illustration of the apiary of F. L. Snyder, Orion, Wisconsin. We have secured from this man over 3000 lbs. of the finest baswood honey we ever tasted. It was produced in the apiary shown; and no man, however skeptical he may be in regard to the manufacture of honey, after tasting this, would call it any thing but pure honey of the best kind. The secret of its being so nice is, that friend S. lets it stand in open barrels and cans for several weeks for it to ripen. As a result, it is so thick it will hardly run. We have also secured from friend Baxter, of Nauvoo, Ill., about 10,000 lbs. of very fine clover extracted honey. We have only the sample here yet; the stock will arrive in a few days. Judging from the sample, we should say it was as good as friend Snyder's. Both lots of honey are in barrels of from 500 to 550 lbs. each; and the price by the barrel is 9c per lb. We will put it into 60-lb. square cans, and ship in lots of 1, 2, or more cans, at 10c per lb. We have some of Snyder's honey in kegs of from 50 to 55 lbs. each, which we will sell at 9½c per lb. We have some choice white comb honey in 20-lb. cases, which we offer at 16c per lb.

REVISED PRICE LIST OF THE DOVETAILED HIVE.

We have revised the table of prices of the Dovetailed hive, which appears below. New prices go into effect from this date. You will notice a slight advance. Having added a price list of parts this was necessary to make things agree. As some have not understood just how to put this hive together, we have made a diagram, with minute instructions, which we give below, and which will also be included with each lot sent out.



DOVETAILED HIVES PUT UP AND IN THE FLAT.

Description.	Price each.	In lots of	Weight of
(Please order by numbers.)		1 5 10	10
No. 1. Eight-frame Dovetailed hive, shown to the left, above, with one bottom, body, one super, with sections, separators, and foundation starters, slatted honey-board, 8 all-wood frames and cover, 1½ story, for comb honey, complete, put up and painted.	1 50	1 45	1 40
No. 1. Eight-frame Dovetailed hive in flat, complete, same as above.	1 20	1 10	1 00
No. 1. Eight-frame Dovetailed hive, in flat, empty, same as above, leaving out sections, separators, and starters.	91	77	72
No. 2. Eight-frame Dovetailed hive, shown to the right, above, is furnished just like No. 1, with one more super added, making a two-story hive complete, put up painted.	2 00	1 95	1 90
No. 2. Eight-fr. Dovetailed hive in flat, complete, as above.	1 51	1 40	1 35
No. 2. Eight-frame, Dovetailed, in flat, empty, same as above, leaving out sections, separators, and starters.	1 10	95	91
No. 3. Same as No. 1, except that it has T tins in the supers, instead of section-holders. Same price.			
No. 4. Same as No. 2, with T tins instead of section-holders. Same price.			

We will make the Dovetailed hive 10-frame instead of 8-frame, in any of above numbers, as follows:
Nailed and painted, complete, 25 cts. each extra.
In flat, complete, 20 cts. each extra.
In flat, empty, 15 cts. each extra.

NAILS SUITABLE FOR ABOVE HIVES.

	Price for	10	25	50	hives.
Nails for No. 1. Dovetailed hive.	10	25	45	2 00	
Nails for No. 2. Dovetailed hive.	10	30	55	2 25	
Nails for Nos. 3 and 4, same as for Nos. 1 and 2 respectively, and for 10-frame same as for 8-fr. hives.					

DISCOUNTS FOR QUANTITY.

For 20 hives, deduct 2 per cent.	For 50 hives, deduct 5 per cent.
For 30 hives, deduct 3 per cent.	For 60 hives, deduct 6 per cent.
For 40 hives, deduct 4 per cent.	For 80 hives, deduct 8 per cent.
For 100 hives or more, deduct 10 per cent.	

TABLE OF PRICES OF PARTS OF DOVETAILED HIVES.

Name	Wt. of 10	Price.	Flat.	Nail'd	Painted.
		1 10	1 10	1 10	1 10
8-fr. Dove'd bottom-board	40 lbs.	10	80	12	1 00
8-fr. Dove'd cover-board	40 lbs.	10	80	12	1 00
8-fr. Dove'd cover, with tin.	50 lbs.	15	30	18	1 60
8-fr. Dove'd body, empty.	70 lbs.	24	2	00	2 50
8-fr. Dove'd super, empty.	35 lbs.	12	1	00	15
10-fr. Dove'd bottom-board	50 lbs.	12	1	00	14
10-fr. Dove'd cover-board	50 lbs.	12	1	00	14
10-fr. Dove'd cover, with tin.	64 lbs.	20	1	00	22
10-fr. Dove'd body, empty.	76 lbs.	20	2	50	35
10-fr. Dove'd super, empty.	38 lbs.	15	1	25	18

For the same quantity of parts the same discount will apply as on complete hives.

DIRECTIONS FOR PUTTING TOGETHER THE DOVETAILED HIVE.

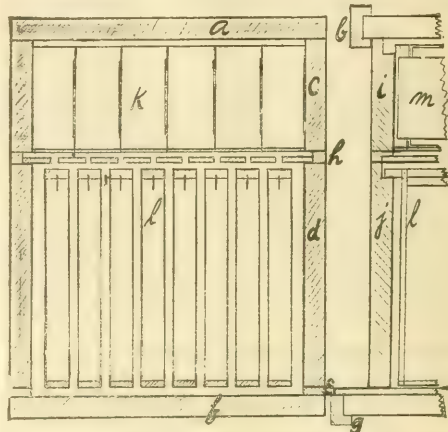
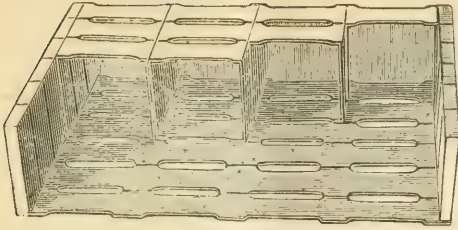


DIAGRAM OF NO. 1 8-FRAME DOVETAILED HIVE.

Drawn to scale of ¾. Fig. 1 is a cross-section through hive the narrowest way. Fig. 2 is a fragment of cross section through lengthwise. *a* is the cover, and *f* the bottom-board. These are plain boards, ¾x13½x21½, the only difference being that the cover is a better board than the bottom; that is, clear of checks and knots; *b* is the cover-board, ¾x13½x13½, grooved ¾x¾. One of these is nailed to each end of the cover, and to the back end of the bottom; *g* is the cleat for the front end of the bottom, ¾x1½x13½, rabbeted ¾x¾; *e* is the side strip for bottom, ¾x¾x21; *c* is the side of the super; *i* is the end. The super measures 4¾x13½x20¼, outside, 11½x18½ inside. Two supers are made by ripping one body in two; *d* and *j* are the side and end of the body, the same size as super, 9½ deep. The rabbet in the top edge of the end of the super and body is ¾ wide by ¾ deep; *h* is the honey-board, consisting of 13 pieces. Two pieces, ¾x13½, rabbeted ¾x¾, form the ends, as shown to the right of *h*. Two pieces, ¾x11½, rabbeted on the ends to fit the rabbet in end-piece; 9 slats, 1½x19½, spaced as shown, and nailed into rabbeted end-piece. This honey-board may be made queen-excluding by making saw-kerfs in the edges of the slats, and sliding in a strip of perforated zinc, as shown at *k*, in drawing of Simplicity hive. *k* is the section-holder, of which this is an illustration of 6 standing side by side. The ends are plain blocks, 1½x1½x4; the bottoms, ¾x1½, slotted as shown. *m*, in Fig. 2, is the tin separator, ¾x18. This is nailed to one side of the section-holder. The section-holders rest on a tin strip, 1½x12, nailed to the bottom inside edge of the end of super, as shown in Fig. 2, to the right of *h*, and between the honey-board and super; *l* is the brood-frame, of which there are 8 to each hive, and which are spaced ½ in. apart, and from each side of



SECTION-HOLDERS FOR THE DOVETAILED HIVE.

hive. They measure 9½x17½ outside; top-bar, 19½. They are ½ wide all around, and top-bar ¾ thick; ends and bottom, ½. A comb-guide, 1x3, is inserted in the top-bar, as shown, to guide the bees, or to attach comb fdn. to. See detailed cut of this frame, page 14 of catalogue.

Eight-frame Dovetailed hive No. 2 is just like No. 1, with another super added.

No. 3, eight-frame Dovetailed, is just like No. 1, except that it has 5 ½ tins to support the sections, instead of 4 the section-holders. No. 4 is like No. 3, with 2 supers instead of one.

Ten-frame hives are arranged just like the eight-frame, but are 16 inches wide outside, have 2 more brood-frames below, and one more section-holder in super.

As two supers are just the same depth as one body, brood-frames may be hung in the supers for extracting, or another body may be used on top the lower one, instead. The bee-space is put in the bottom-board instead of making the body deeper, for various reasons, of which this is the most important. It makes all bodies the same depth, so they can be tiered and interchanged, or split in two for supers, thus simplifying the construction of the hive. It also secures an entrance without cutting it from either body or bottom, thus leaving the bottom and cover boards exactly alike.

No tin rabbits are used in the Dovetailed hive; but the frames hang on a wood bearing. No enameled sheets are included with the Dovetailed hives, as they are not necessary. The cover, no matter where put on, comes just a bee-space above the frames, honey-board, or sections, forming the best covering possible in either case.

No. 1, \$2.00; No. 2, \$1.75; No. 3, \$1.50 | Knife
No. 4, 1.25; No. 5, 1.00; No. 6, 65 | \$1.15

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Bingham & Hetherington Smokers and Knives are staple tools, and have been used ten years without complaint, and are the only stovewood-burning clear-smoke bee-smokers; no going out, no vexation. Address

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Contains the result of **practical experience** with Bees. It gives the Physiology of the Bee, with numerous **Quotations** from the latest Scientific Writers, the Description of the **best Hives**, Directions for the Proper Management and Handling of Bees; the most **Practical Methods of Queen-Rearing, Swarming** (Natural and Artificial), with controlling methods; instructions on Establishing Apiaries, Transferring, Shipping, Mailing, Feeding, Wintering; the best methods of producing **Comb and Extracted Honey**, the Handling and Harvesting of Honey, the Making of Comb Foundation, etc., etc.

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Hamilton, Hancock Co., Illinois.

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FERRETS, WHITE RABBITS, WHITE
AND BROWN LEGHORN CHICKENS, AND
MALLARD DUCKS, ADDRESS
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MUTH'S HONEY-EXTRACTOR.

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES.

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

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CINCINNATI, O.

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IS A GOOD MARKET.

We make liberal advances in CASH on consignments, sell quickly at highest obtainable market prices, and pay the net proceeds

IMMEDIATELY after honey has been sold. We charge for commission and GUARANTEE of payment, five per cent. Ship by freight to

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WHOLESALE HONEY MERCHANTS,

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HONEY COLUMN.

CITY MARKETS.

KANSAS CITY.—Honey.—Honey is selling very slowly at 14c for 1-lb. white comb, and the prospects are for lower prices. We have been trying to hold the market to 14 and 15c, but parties in Iowa and Illinois are offering and selling white 1-lb. comb at 12@12½c, delivered here and at other points in Kansas. Receipts are large, and in order to sell we shall have to meet these prices. Extracted, steady at 7@8 for white, and 5@6 for amber.—*Beeswax*, 20c. Sept. 14. CLEMONS, CLOON & CO., Kansas City, Mo.

BOSTON.—Honey.—Receipts of honey have been a little in excess of the sales, and there has been a disposition on the part of some to reduce the prices. We quote our market from 16@18c for 1-lb. combs; 16@17 for 2-lbs. Extracted is stronger, and promises to be even higher, the market to-day being from 8@9c. No *beeswax* on hand. Sept. 23. BLAKE & RIPLEY, Boston, Mass.

ST. LOUIS.—Honey.—We quote choice white clover honey, 1-lb. sections, single tier cases, 12, 24, and 32 lb. preferred, 12½@13½c; fancy, 14. Same grades and larger sections, 9@11c. Extracted, white clover, cans, 6½@7c; bbls., 5½@6. Southern, dark, 4½@5; bright, 5@5½. W. B. WESTCOTT & CO., Sept. 13. 320 Main St., St. Louis, Mo.

CINCINNATI.—Honey.—No change in the market since our last. We quote extracted honey at 5@8c on arrival. Comb honey, 11@16c in the jobbing way. Arrivals of extracted honey are good, while choice comb honey arrives in small lots only.—*Beeswax* is in good demand at 20@22c on arrival, for good to choice yellow. CHAS. F. MUTH & SON, Sept. 23. Cincinnati, Ohio.

NEW YORK.—Honey.—Extracted, white clover, basswood, California, and orange bloom, 8@8½c. Comb honey, 1 lb., fancy white, 16c; 1 lb., fair, 14; 2 lb., fancy, 14; 2 lb., fair, 11½; 12; 1 lb., buckwheat, 11@11½; 2 lb., 10@11. Demand is good. We make quick sales and prompt returns. F. G. STROHMEYER & CO., Sept. 23. 122 Water St., New York.

ALBANY.—Honey.—Consumption improving, and receipts not equal to demand at present, especially of buckwheat, or something to sell at 12@13c. White clover, 14@18; mixed, 13@15; buckwheat, 12 13; extracted, clover, 7@8; buckwheat, 5½@6½c. Consignments and correspondence solicited. H. R. WRIGHT, Sept. 25. Albany, N. Y.

KANSAS CITY.—Honey.—Demand good for comb and extracted. Sales large for this time of year. Prices are lower, owing to offerings by bee-keepers. White clover and linn, 1-lb. sections, fancy, 14@15c; good, 13@14; dark, 12; 2-lb. sections, 13@14; dark, 12. Extracted, white, 8; dark, 7c. HAMBLIN & BEARSS, Sept. 27. 514 Walnut St., Kansas City, Mo.

ST. LOUIS.—Honey.—Market quiet. Choice white clover, comb, 12@12½; fair, 10@11; dark, 7@7½. Extracted and strained, bright, good flavor, 5½; dark, 5@5½; in cans, bright, 7@7½. D. G. TUTT GRO. CO., Sept. 23. St. Louis, Mo.

FOR SALE.—9000 lbs. of honey, in scant 1-lb. sections, crates holding 12 sections; will take 13c for white clover, and 11c per lb. for dark, f. o. b. here. JOHN HANDEL, Savanna, Ill.

FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections, and 12-lb. cases, at 15c per lb. (100 lbs. or more). Also 60-lb. screw-cap cans of extracted clover honey at \$4.90 per can; 2 cans in 1 box, \$9.60. Safe arrival guaranteed by freight. OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa. 17tfdb

FOR SALE.—One ton section honey, in 20-lb. cases. It is A No. 1. Nearly 1600 lbs. is white-clover honey. GEO. RALL, Frenchville, Wis.

FOR SALE.—3000 lbs. of fine hearts-ease honey in first quality 1-lb. sections, 24 and 48 lb. cases, delivered free on board cars at Dixon, in good order, at 11½c per lb. Also 4000 lbs. of white-clover honey, at 13c. E. BAER, Dixon, Ill.

FOR SALE.—2000 lbs. of extracted honey in 60-lb. cans. I will send samples to any one wishing to buy. H. VAN VRANKEN, Union City, Branch Co., Mich.

FOR SALE.—4000 lbs. extracted clover and basswood honey, in 10-gal. kegs, 120 lbs. net, at 10c per lb., kegs thrown in. 500 lbs. comb honey at 14c. M. ISBELL, Norwich, Chenango Co., N. Y.

FOR SALE.—2500 lbs. of choice white clover and basswood honey, put up in 60-lb. screw-top cans, at 7c, cans thrown in. F. W. HOLMES, Cooperville, Mich.

FOR SALE.—Choice white-clover comb honey, 12 sections in case, 9 and 10 lbs. net, per lb. 13c, f. o. b. Second quality, 11c per lb. J. A. GREEN, Dayton, Ill.

FOR SALE.—25,000 lbs. choice extracted white-clover honey, in barrels holding about 550 lbs. net, each. I put it up also in packages of any size desired, in either wood or tin. There is no finer honey than this in the market. Write me what you want, and I will give you prices. EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

HONEY WANTED.—Write to CHAS. S. STRONG, Plymouth, Ohio.

WANTED.—Ten thousand cases buckwheat honey, in 25 to 50 lb. cases, and about ¾-lb. sections, well filled, in paper or pasteboard boxes. Will not sell less than 12 to 13c per lb. any year. We can never fill all our orders for such, as no bee-keeper uses the same style section and case, which curtails the demand for honey, as orders can seldom be duplicated. Such selling now at 13c per lb. All bee-keepers should use this size section.

H. R. WRIGHT, Wholesale Dealer, Albany, N. Y.
References: Albany County Bank, or any Mercantile Agency.

FOR EXCHANGE OR SALE.—Fifty colonies of Italians very low. What have you to trade? How many do you want to buy? Will include a first-class honey trade if all are taken. E. T. ABBOTT, St. Joe, Mo.

FOR SALE.—A little home of six acres of land for \$400. As good a location for bees as the county affords. Natural resources of honey splendid. For particulars address GEO. W. COOPER, Concord, Lewis Co., Ky.

FOR SALE CHEAP.—One second-hand 6½ horse-power Bookwalter engine and boiler, in running order. Price \$230, delivered on board cars at Rimerton Station, A. V. R. R. For full particulars address SAMUEL HEATH, Tidal P. O., Armstrong Co., Pa.

Cash Paid for Beeswax.

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WITH 8-FRAME L HIVE AND UNTESTED CARNIOLAN QUEEN, \$5.00. UNTESTED CARNIOLAN QUEENS, \$1.00 EACH.

O. F. SUNDERLAND, St. Albans, Vt. Box 411

ITALIAN QUEENS. Tested, \$1.00. Untested, 75c. Mismatched, 35c. Send for price list.

MISS A. M. TAYLOR, Mulberry Grove, Bond Co., Ill. Box 77. 17tfdb

FOR SALE.

90 colonies Italian bees in 8 and 10 frame hives, at \$3 per colony, in lots of 10 or more.

JOSEPH MCGREGOR, Earlville, Ill.



Vol. XVII.

OCT. 1, 1889.

No. 19.

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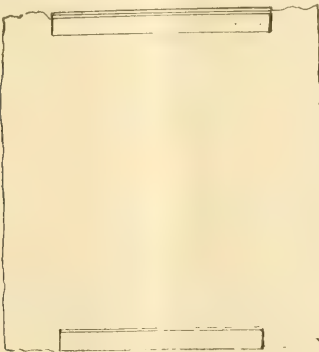
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OUT-APIARIES, NO XVI.

TOOLS FOR OUT-APIARIES, AND WHERE TO KEEP
THEM.

WHATEVER tools you use in the home apiary, you are likely to need the same in each out-apiary. If a different person is in charge of each apiary, then each one must have his own set of tools; and even if the same force go in succession from one apiary to another, it may be the most convenient to have a separate outfit kept at each place. I do not think just now of any thing in the line of tools needed for an out-apiary, different from those needed at



ROBBER-CLOTH.

home unless it be a robber-cloth. I should not like to be without one of these in the home apiary, but they are specially valuable in out-apiaries where, sometimes, notwithstanding robbers are troublesome, your plans are such that you want to force through a certain amount of work. By having two or three robber-cloths I have sometimes been able

to go on with my work when, without them, I should have been obliged to desist. I'll tell you how to make one. Take about a square yard of stout sheeting or cotton cloth—if your hives are small, less will do. Lay one of the cut edges on a piece of lath, about the length of your hive; lay a similar piece of lath on top of it, and drivewire nails through both, at a distance of perhaps three inches apart. Let the nails be long enough to reach through and clinch them. Then treat the opposite edge the same way, and your robber-cloth is complete.

This robber-cloth is exceedingly convenient to throw quickly over any hive or super that you want to cover up temporarily. You can grasp the lath at one side with one hand, and, with a single fling, throw it over a hive and it is instantly bee-tight. It doesn't kill bees if any happen to get under it. If you have one hand occupied with something else, you can quickly uncover and cover with the other. I have sometimes worked with a colony when robbers were so 'bad' they would pounce into every opening; but a robber cloth covering the frames at each side allowed me to have an opening at the frame I wished to take out. As a general rule, of course I would try to manage not to work at bees at such times.

But to return. It would be very convenient, if you go about from one apiary to another, to have a little tool-house at each. I am not sure, however, that it would pay. A hive or box covered over with a water-tight cover (I use a tin hive-cover) answers very well. I would have one or more of these at each apiary at any case, for there are some things you always want to be sure of having on hand, as smoker fuel. Matches should also be kept under cover in such a place, in a tin box. A baking-powder box does well. Bee-hats, smokers—in fact, a full set of every thing, may be kept in the same way.

It is possible, however, to get on very well by always taking your tools with you, provided you never forget them. One day we went to the Hastings apiary without any smoker, and we realized then how important a smoker is. Don't trust to memory. In your record-book have a list of the things you generally need to take; and after you are all in the wagon, or ready to get in, read aloud the list and be sure that every thing is in the wagon, as: Hats, smokers, dinner (we never forgot our dinner), chisel, etc. My own practice has been a kind of compromise between having a full kit of tools at each apiary and taking every thing along. If a buggy is used it is not convenient to have very much bulk. By the way, a bad season is not without its compensations. I have had two years of such dead failure that we could make almost every trip the entire season in a buggy, for there was no honey to haul, and very little in the way of supplies. Marengo, Ill.

C. C. MILLER.

Now, look here, old friend. Here you have been recommending robber-cloths, while the fact is, that, during the three days I was with you, all over the premises in the honey-house and shop, and making myself at home almost everywhere, I never caught a glimpse of any such thing as a robber-cloth. I do not think I shall insinuate right here that some of the things you recommend are all on paper, for it just now occurs to me that the bees did not rob while I was there; in fact, even spilling honey on top of the hives did not make them rob, so I suppose you had the robber-cloths all rolled up and tucked in some neat drawer or cupboard. I thought of them once or twice; but there was so much talking to be done, that, before I got a chance, the matter escaped my memory. Now, I do not like a baking-powder box to keep matches in at all. It is too much trouble to pull off that tin cover every time you want a match. I know there is some danger of getting your fuel burned up; but I like to have matches so I can grab one up with one hand. It is something on a line with what I tell my wife about locking the doors nights. I would about as soon have burglars go through us, say once in about ten years, as to go through the operation of locking and unlocking so many thousand times, without any good from it. She thinks, however, that the feeling of safety and security amply compensates for traveling around night and morning to lock and unlock the doors.

TO PREVENT ROBBERING, ETC.

SEVERAL THINGS TO BE CONSIDERED IN GETTING READY FOR WINTER.

A CORRESPONDENT asks if musk will prevent robbing, if placed in a hive which is being robbed. Musk, spirits of turpentine, kerosene oil, etc., have all been recommended to stop robbing; but I do not believe that, after robbing is well under way, any of them will do any good. When robbers first attack a hive, a few drops of kerosene oil or spirits of turpentine sprinkled against the hive and on the alighting-board, a few inches from the entrance, will often cause robbers to leave in disgust. However, I find that the best way is to contract the entrance at all

times when robbing is likely to occur, so that but few bees can pass at a time. I have also tried leaving a pane of glass up before the entrance, as recommended by some of our English friends across the water, where robbers seem determined to enter any hive, but I do not see that it is in any way superior to contracting the entrance, while it seems to bother the bees of the hive much more. If robbers have really got possession of the hive, throw a sheet over it, so that those on the outside can not get in; and if the colony is good for any thing, they will soon drive out those already in, when the sheet is to be turned so as to get rid of them. Leave the sheet on till near sunset, when it is to be taken off so as to allow the few bees out to get into their hive. Fix the entrance so that but one or two bees can pass at a time, and the next morning they will take care of themselves. Something much better than the sheet for stopping robbers is a lee-tent, to be set over the whole hive; and where the apiarist has such a tent, it is hardly necessary for me to tell him to use it in place of the sheet.

FEEDING SUGAR.

Another correspondent wishes to know how to feed his bees on sugar. There are two ways of feeding sugar to bees; one of which is, to make the sugar into candy by kneading a little honey in with it, till it forms a stiff dough, as it were, or it can be made into large cakes of soft candy by boiling it just right in a little water, when it is laid over the frames for winter stores. During winter, the moisture arising from the bees collects on the candy, which moistens it to such an extent that the bees can lick it up, thus giving them a supply of food. However, during a cold spell it often happens that the bees fail to cluster on the candy, and the severe cold keeps them from leaving the cluster to reach it, so that starvation occurs, which is not satisfactory to the apiarist; hence this plan of feeding is not practiced, only as the bees have been neglected till cold weather prevents any other way of feeding. When a colony has a few pounds of honey in the hive to "bridge" over these cold spells, this way of feeding is very satisfactory for the purpose intended. The second plan, and by far the preferable one, is to make the sugar into a syrup, which is fed to the bees in feeders during the warm days of September or October, so that they can store it in their combs, and cap it over the same as honey. As I have so many letters asking how I make this syrup, I think the editor will publish the matter again, even if he has already published the formula twice before.

Put 15 pounds of water in a vessel that will hold about 25 quarts, and bring the water to a boil. When boiling, slowly stir in 30 pounds of granulated sugar, so that it will dissolve, instead of settling to the bottom and burning. Now bring to a boil again, when it is to be set from the fire, and 5 pounds of good honey stirred in. This gives about 50 pounds of feed, of about the consistency of honey, the same being the best for winter feeding of any I know of.

BEEES DROWNING IN FEED.

Still another correspondent wishes to know how he can feed his bees syrup without their sticking fast and drowning in it. To obviate this a very narrow feeder must be used so that the bees can cling to the feeder on each side, or a float must be provided for the wide feeder. A feeder which is more than $\frac{1}{2}$ of an inch wide will always drown

bees unless the float is used. One of that width and under, needs no float, for the bees are never out of the reach of one side or the other of the feeder. As the larger part of those feeding bees use any thing that they come across for this purpose, the common six quart milk-pan is probably more largely used than any thing else. I will tell the readers how I use this successfully. To use such a pan as a feeder, however, the hive must have a cover of depth enough to go over the pan, otherwise the bees from the outside would get at the feed and cause trouble. Set the pan on top of the hive, and fill it with syrup, after which pull up two or three handfuls of the short grass about the hives, and scatter over the syrup for a float. Set up a piece of a section or chip against the side of the pan, so the bees can easily climb over to the feed, when a hole is to be opened to the hive below, by turning up one corner of the quilt, or removing a slat in the honey-board, for the bees to come up through. I now scatter a few drops of the feed down through the hole and over the chip, and put on the cover, seeing that all is tight about the joints, so that no bees can get in from the outside. As these pans hold about 20 pounds of feed, this once feeding is all that most colonies require.

UNITING BEES.

Another correspondent wishes to know how it would do to unite two weak colonies of bees for winter. This is the proper thing to do; for two weak colonies, kept separate, will consume nearly twice the stores which both would unite, and very likely perish before spring, while if put together they would winter as well as any large colony. The way I would proceed in such a case would be as follows: If one of the queens is known to be feeble or inferior, she is killed, so that the best one may survive, when both colonies are smoked freely, I pounding on top of the hive as I smoke them, so that the bees may fill themselves with honey, after which one is carried to the stand of the other, and both hives opened. I now select out of both hives the combs containing the most honey, setting them in one of the hives alternately, so as to mix the bees as much as possible, thus causing them not to fight, and also to mark their location anew upon their first flight afterward, so few if any return to their former home. After the hive is filled with comb, close the same; and after putting a wide board in front of the hive, reaching from the ground to the entrance, shake the bees off the remaining frames, taking one from one hive and the next from the other, thus mixing the bees as before. Take every thing, which would look like home, from the old stand, storing combs, hives, etc., away for another year, and the work is done.

G. M. DOOLITTLE.

Borodino, N. Y., Sept. 23, 1889.

In addition to the matter of robbing, I would say, be sure that the robbed hive has a laying queen, or unsealed brood from which to raise a queen. If they are queenless, and destitute of all means of raising a queen, you may try all the recipes and plans ever invented, and they will not avail a particle; and where robbers have really got a going, as friend D. says, nothing avails but to shut the hive up with a cloth or bee-tent, or some equivalent; and even then, where the queen is gone, I know they will go right at it again just as soon as the tent or cloth is removed. In regard to adding honey to

the syrup, unless you know where the honey came from, be sure it is scalded enough to kill all germs of foul brood. A burnt child dreads the fire; and I tell you, we have been burned terribly. To prevent bees drowning, when feeding in a tin pan, a great many use simply a piece of cloth spread over the pan. The wooden butter-dishes, we have found perhaps the cheapest and simplest of any thing in the line of feeders. Even without a float, they seldom drown in these. So many bees pile into them they are empty before a bee has a chance to die. Our experience in uniting is much as given above, except that sometimes a good many bees will get back to the old stand, or go to hives adjoining the old stand.

INTRODUCING.

DOING IT WITHOUT LOSS, ON THE CANDY PLAN.

MUCH has lately been said on the subject of introducing queens; and I would say, after having tried all the various methods in use, that I have, for the last two years, introduced without the loss of a single queen, with a wire tube similar to Doolittle's cage for introducing virgin queens, only there is no wood, except a plug, for each end. I fill the cage half full of candy, and fill the end with a wooden plug, in which there is a hole just large enough for a single bee to pass through. I put the queen in the other end and plug it up, or pinch it shut. I place this cage between two top-bars over the center of the brood-nest, and close the hive; and by the time the bees eat through the candy, which is usually inside of two days, they are so well acquainted with the new queen that she is safe. By this method I lose no queens, and I also get rid of the bother of releasing the queen, removing the cage, etc.; for, lying as it does between the top-bars, it is no hindrance to the bees or anybody else. I think that any colony of bees will more readily accept a queen if they are not disturbed after the cage has been placed in the brood-nest. CARNIOLANS DISCARDED AFTER A CAREFUL TEST.



In a former article I think that I spoke of our Carniolan queens as being among our best layers. Now, that is about all I can say for them; and at the close of the season, having given them a thorough test, I can say that they are no better workers, and no more gentle, than our Italians; and looking, as they do, so much like our common black bee, I have discarded them, and next season we will raise nothing but Italians.

SUPERSEDITION OF YOUNG QUEENS.

We commenced this season with 45 colonies, and increased by natural swarming to 78, and doubled back to 64 for wintering. About two-thirds of these new swarms issued with virgin queens; and a number of colonies that did not swarm at all, superseded their queens during June and July. This is something new in my experience, to see such a wholesale superseding of young queens, for most of them were of last season's raising.

This has been the poorest season I ever saw. There was plenty of clover and other bloom, but it has been too wet and cold for the bees to do any

thing with it. But very little buckwheat was sown in this locality, and, as a result, our fall crop will be light. There is an abundance of goldenrod and asters, but they do not as yet seem to entice the bees. For the last two weeks there has been considerable honey-dew on the oak and hickory; and I judge from the dark color of the honey now being stored, that it comes principally from that source.

I don't think that our crop of honey will exceed half a ton, all dark, stored in one and two pound sections; and if we had not done a fair business in selling untested queens our books for the season would balance the wrong way. S. W. TAYLOR.

Harveyville, Pa., Sept. 9, 1889.

No doubt, friend T., you have never had a failure by the above plan; but it does fail, however, now and then, like every other plan of introducing. Suppose, for instance, you tried to introduce to a colony with two queens in a hive. After taking out one you supposed them to be queenless, while the truth was they had a queen already. In such cases the new comer will be destroyed, no matter how she is introduced; and a great many troubles and disputes have come about in just this way. It is not at all uncommon to find two queens in a hive, and it therefore follows that it is not uncommon for a queen to be in the hive, even after you are sure you have removed one queen.

HUMBUGS AND SWINDLES PERTAINING TO BEE CULTURE.

THE GOLDEN BEE-HIVE, AGAIN.

There is one J. B. Pickrel, purporting to be of Nashville, Tenn., doing up the western portion of this State with the oft-heard-of Golden bee-hive. I was on a visit to friends last week, and I found that he is simply coining the cash out of those poor ignorant mountain people. He sells a farm-right to make and use his hive, for ten dollars. He also gives a small book, which seems to be only extracts from some work on bees; yes, a circular too, one of which I will inclose. This circular is what sets them on fire; and I learn, and that, too, from one of his victims, that there is no difficulty, once the circulars are in the hands of any that are the least inclined to bees. There are quite a number of statements in this circular that will call forth criticisms.

A. L. BEACH.

Pineville, N. C., Aug. 16, 1889.

Thank you, friend B.; and we shall be very much obliged to any of the friends if they will send us similar circulars, and report to us any such doings. We have referred to this circular before, but it will not do any harm to keep it before the people. There are a number of testimonials from those using the Golden bee-hive. We give just one, as a sample:

Prof. A. J. Cook, of the Michigan Agricultural College, at Lansing, reports over \$80 from each swarm of bees kept in the Golden hive last year.

The man who obtains money by exhibiting such a circular, can certainly be arrested for obtaining money under false pretenses. Prof. Cook has never had any experience with the Golden hive at all, and, of course, never made any such report. Will some of

our legal friends tell us what can be done with a man who sends out circulars containing statements like the above, which are but little better than forgeries?

FALSE STATEMENTS IN REGARD TO THE HONEY BUSINESS OF OUR COUNTRY.

As a protection to our bee-keeping population, we propose in this department to publish the names of newspapers that persist in publishing false statements in regard to the purity of honey which we as bee-keepers put on the market.

They have a man in Pittsburgh who comes out in print and declares that comb honey is manufactured, and that he has samples of it, and can prove it by the microscope. Here is what he says in the *Pittsburgh Dispatch* of Sept. 23; but before reading it, we would refer our readers to page 757 of our previous issue.

ANOTHER WORD ABOUT MANUFACTURED HONEY.

A letter appeared in a recent issue of *The Dispatch* in reference to some statements made in the article by the writer, on the subject of sugar and honey. It has been my intention not to answer this letter, but at the request of many friends the writer wishes to make the following affirmations:

First, that he has found a comb honey (?) on the market which contains no evidences of the presence of any bee product whatever. There is no heresay evidence about it — the specimen was handled and microscopically examined by the writer. Second, that each and every one of the adulterations stated in these articles to have been found, were detected by the writer himself in samples obtained as stated. In all cases where possible, samples of the adulterated foods have been retained, with proof of the adulteration found.

The one thing above all others that is claimed for these articles is accuracy; and when any thing has been asserted on hearsay evidence, it has been so stated. The writer does not care what the supplement of the encyclopedia mentioned said or did not say. He knows what he has seen, and he can prove it. But he declines to enter into a controversy, as he does not wish to go into the detective business or compete for prizes. However, if the doctor who wrote the letter referred to, or the gentleman who is offering prizes, or any one else will come to the writer's office, he may see a sample of adulterated comb honey with irresistible proof that it is such. CHEVALIER Q. JACKSON, M. D.

Pittsburgh, September, 21.

Mr. Jackson, we beg to inform you that, among the bee-keepers of our land, are some of the most expert microscopists to be found in the world. We are fortunate in having, in the person of Mr. M. H. Tweed, of 154 Webster St., Allegheny City, a man who is expert in every thing that pertains to bees, honey, and the honey market. Will he kindly visit friend Jackson, and carry the thousand dollars to him, if he declines to take the trouble to come after it? If, however, his specimen of honey proves to have been made by the bees, we deputize friend Tweed to present Dr. Jackson's apology to the bee-keepers of our land. Our laws clearly protect us from damage sustained, resulting from false and slanderous statements. Now, it is not an individual who suffers in a case like the above, but it is a nation of people. It is estimated there are over 300,000 bee-keepers in this land of ours. This doctor, who has a microscope, has struck us all a blow; and if, when the truth is presented to him, he refuses to retract, and he has ample proof of his blunder, we, bee-keepers of the United States, propose to see what we can do with him.

TYPES OF BEES.

BEES FROM DIFFERENT QUEEN-BREEDERS.

PERHAPS one who never studied the habits of bees would conclude that all types of bees, according to numerical strength, are alike industrious. But the practical apiarist knows that there is as much difference in the disposition of bees as there is in men. In the morning, when I go round the apiary I at once notice the vim and eagerness of No. 3 of J. C. Frisbee's strain. With the first gray streaks of dawn they are off with a rush as if bound for the first nectar of the morning bloom. I have often thought, "You certainly will wear yourselves out; you are too eager to be jeh."

In looking around I see a few bees beginning to fly from No. 4 of A. I. Root's strain, which is a trifle brighter than Frisbee's. Gradually No. 4 comes up until 10 o'clock, when the heaviest field force is coming from this hive, which is a constant rush through the warm part of the day.

I have some of J. M. Jenkins' strain of Italians which are beauties, but they seem to be lazy, not good comb-builders. They are a trifle longer, and the queen is yellower than Root's or Frisbee's. The Root bees seem to incline toward red clover, while Jenkins' work mostly on touch-me-not. Frisbee's will suck red horsemanit or any thing. I have black bees, which, during poplar and basswood bloom, are about at the top. For hardiness and comb-building qualities, blacks lead the world. They will kill their drones earlier than the Italians. They build up faster in spring. They cap their honey whiter. They are easier run out of sections. I have seen round gums of blacks so heavy that a strong man could not lift them. A neighbor once killed two black colonies and obtained from one 11 gallons of honey and from the other 12.

G. W. MCGUIRE.

Dark Ridge, N. C., Aug. 19, 1889.

Is not the peculiarity you mention, rather the result of accident than because the bees were particularly different? Our stock all comes from Italy, therefore we presume it will average about the same, year after year. If I am correct, friend Jenkins also depends upon imported mothers for his best bees.

BEE-KEEPING IN SOUTH AFRICA.

AN INTERESTING LETTER ON HOW THE NATIVES SECURE THEIR HONEY; WHAT THEY DO WITH IT, ETC.

MR. ROOT:—Some time ago I wrote you that Mr. Wilcox's GLEANINGS came to me, and ventured to suggest that, if it continued to come, it would be very acceptable to me, and in return I would try to inform you of "sweet" matters in this vicinity. I see Bro. Goodenough is portraying his system of bee-keeping, as carried on in Natal, and a comparison of other methods as carried on here by the natives may be interesting. We are some 600 miles from Natal, and that is our nearest point of supplies. We could not get a pound of flour at any nearer point, nor a tack, nor pin. But honey is abundant here—more so than there is any demand for.

AN AUTOMATIC BEE-HIVE; A SELF SWARMER, HIVER, ETC.

The method of bee-farming as it is carried on here

is as follows: "A native cuts a circle in the bark of a tree, and about three feet above he cuts another; then he cuts in a straight line from one circle to the other, and strips off the entire bark as cut. While this is still green he refolds it in the shape of the tree, and carefully sews up the center seam; and after folding the two ends in a more or less square form he sews them up, leaving the merest entrance for necessary purposes. His thread is bark, and his needle a thorn, and his punch is his spear. This article, I will tell you plainly (you would never guess), is a bee-hive, and it does excellently well for this class of bees, and this system of bee-farmers, and this climate. This bee-hive is now placed in the top of any large tree, and others with it, and then left to future developments. It is automatic throughout, if it acts at all; self-hiving, self-swarming, self-regulating; and about half the time it appears to be an automatic fizzle as a honey-collector. I am no expert on matters pertaining to the apiary; but such observations as I have noted are from an amateur's point of view, and are to be valued as such. However, I may underrate the excellences of this system of hives.

The forests all about are well provided with these hives, and bees should not fail of finding comfortable habitations in their native forests; but they do take unaccountable notions at times, and I have had pitched battles for a week at a time to keep them out of our spare bed-room; and whenever a sack of sugar is opened, or any thing they take a notion to desire, they monopolize the house till we discover what is the matter with them, and then the desirable thing is put in a strong case, bee-proof, and then after smoking, brooming, and general destruction so far as we can apply it, the bees depart till we are unlucky enough to get something else about that they conclude is desirable for them.

On one occasion, a swarm having alighted on a tree close to the veranda, and appearing to be preparing for a charge on the house, I drove them away by firing two loads of dust shot into them at short range; but whether they were confounded by the noise, or were actually alarmed at the terrific losses sustained, or whether they had no intentions on the house or not, all is a conundrum to us; but they gathered up and went their way in about 15 minutes after the shots.

The bee in this vicinity is not so large as the honey-bee in America, nor is it very much smaller, certainly not so small as Bro. Fuller's are in India. The swarms that have alighted about the house from time to time are about the size of a half-bushel, and to all appearances I should call them active and determined workers, persistent fighters, and excellent thieves. You will no doubt at this point, if not before, ask within yourself, "Why doesn't he hive those bees and have honey?" The answer is not far to seek. We do have honey-bees thrust upon us, and strained honey is always in the house at about 10 cts. a bucketful (three gallons). Comb honey we never see; but with honey so cheap, and no market for any quantity, great or small, we do not care to have the bees about. We should like nice comb honey, but even this can be had if one is at hand when a box directly from the tree is opened.

I will now proceed with the native method of securing the honey. The hive, as stated, is placed in the tree, and in time, sooner or later, bees do come to the most of the hives, and in time they fill them

with honey. The native usually visits his hives frequently; but sometimes they are left for a long time, when the honey is of a richer quality, and much thicker than any I ever saw in America. It is possible, with the sides of the knife greased, to cut through strained honey, leaving the furrow open and clean for a minute or so after the cut is made. Probably the climate is the chief agency in ripening the honey to so fine a state. When the hive is judged to be full, or when he sees the thing swarming, the native will take down his hive, and extract the honey. This matter of "extraction" is a simple one with him. He takes his hands only, dips in, and takes as much comb honey as he can manage, and squeezes it over and over until he gets most of the honey out. Then when the hive is thus manipulated he takes his wax and melts it in his mush-pot, and, digging a round hole in the ground, about two inches in diameter, and six inches long, he runs his wax in the shape of the molds, and in this shape it comes to market. Some of it is a rich clean yellow, and commands the best price; but more than half of it is dirty, mixed with sand, and is only two-thirds value. First-class wax brings to the native, cash in hand, 360 reis per kilo, or about 18 cts. per lb. The trader takes this wax, and melts all the poorer quality in a large caldron with a faucet some six inches from the bottom. He also adds water, and the wax, when melted, rises, and the sand and other dirt settles into the water. The wax is then drawn off through the faucet, run into cakes about 18 inches by 24, sewn up in a bark skin, and in this shape is shipped to Europe. More than 20 tons are shipped from this port annually.

THE NATIVE HONEY WINE.

But the honey: This product would be much to the credit of the country if not manufactured into something else. The honey will bring the native nothing. He would sell it if he could; he will sell any thing that will bring him copper coins; so he has invented one of the worst uses to which it can be put, and in this manner honey is always in demand. He adds about three parts of water to one of honey, lets it ferment for three days (I can't say just how long positively), and then it becomes one of the severest intoxicants the country produces. It is more maddening than sugar-cane rum, and has the name of being the severest of any of the common native drinks.

Most providentially for the wholesomeness of the country, the supply is limited; and the population being great, the evils are somewhat ameliorated. The native is ingenious in some things at least. With mud pots, with old gun-barrels for pipes, he will distil rum from sugar-cane, cashew fruit, coconuts, pine-apples, farina, corn, sweet potatoes, honey, and one or two vegetable-roots which are found in the forest. All of these substances are abundant in their season, and rum retails at about two cents a tumblerful.

The product in wax, if as much along the other coast ports as here (and I think it more than likely), amounts to more than 100 tons per annum; but with prices paid here, and with \$20 per ton freight to Europe, it would not seem possible to interfere with American prices as quoted from time to time in GLEANINGS. The possibilities for honey in this region are most favorable, without a doubt, and sufficient honey might be produced all along this coast to glut all the markets of the world, and that at the minimum rates of production; but

it is very doubtful if the world will ever see this honey, unless immigration sets in, or the native becomes civilized, and, what is more to the purpose, Christianized. With the former we are in no way connected; but in the latter we are hard at work, and welcome the wholesome Christian spirit manifested in GLEANINGS.

E. H. RICHARDS.

Mongwe, Inhambane, E. Africa, June 7, 1889.

Friend R., we are exceedingly obliged to you for your vivid description of bee culture in your far-away home. Those cheap hives fastened up in the tree-tops are a revival of the matter of decoy hives that has been at different times so fully discussed in GLEANINGS, and I think those very decoy hives placed in the forest in most localities near our large apiaries would get more or less bees and honey. Do you mean to tell us that that thick honey which can be cut with a knife is sold for 10 cents a pailful? Why, I am sure it can be put in suitable tin cans, and shipped so as to give your native friends a better price, and at the same time give the great outside world honey at a lower price. May be you would need a railroad to do it; but the railroad is surely on the way to you, and it is coming right along the line of your closing sentences. This matter of intemperance will probably have to be fought inch by inch, and it seems sad to think that it must follow in the wake of missionary work. May the Lord help us to break loose from this terrible bondage. Are you sure, dear brother, that it is beyond the possibilities for some of our enterprising bee-men to open up bee culture and make use of this honey that you say could glut all the markets of the world? Either you have immense resources in the way of honey, or else the world is larger than either you or I know, in my opinion. On visiting the salt-works of Michigan during my recent trip, I thought more salt was being produced than all the world could use. And yet I found afterward that I had seen only a very inconsiderable establishment compared with others in the vicinity of Manistee.

GETTING OUT OF OLD RUTS.

SHALLOW OR CLOSED-END FRAMES.

THREE years ago I became convinced that a better road lay close alongside the old Langstroth trail, made by the Eight-Frame Co., with which I had been jogging for ten or a dozen years, and I decided to pull over and give it a fair trial. Though convinced in mind, it has taken three years of training to get the other members of my personal organization out of the old rut sufficiently to give the new a word of praise; but I can say now, with head and hand agreeing, that a shallow closed-end frame, and sectional brood-chamber, outranks every thing else at these headquarters.

PERFORATED ZINC.

I asked you, at the Indianapolis convention, if you would advise us to use perforated zinc. You said it would pay, in your opinion. I can't see why I did not invent it years ago. It is indispensable. I should like two sizes—one so small that a virgin queen could not go through provided the nurse-bees could. I use a nursery frame like comrade

Manum's, but mine is the thickness of a brood-comb, and twelve of them stand in a Heddon frame. The top is closed by a queen-cell protector, made of tin, with a cover. I can remove the cell without lifting the cage. My first experiment was to make the cage of perforated zinc, believing the queens would be better if the bees could get into the cage; but I was obliged to cover them with wire cloth, as every queen escaped. I think we sometimes lose a valuable queen by using the excluder. I found one with her head and shoulders through. The bees above were trying to pull her up, and those below were pulling her down. The legs and wings were pulled off, and yet she was fast, and one will sometimes get through; but all losses are more than repaid by having a fair colony to feed through July and August, instead of a hive running over with bees that has been a waste of material to manufacture and support.

FLAT-BOTTOM FOUNDATION FASTENED AT BOTH TOP AND BOTTOM OF THE SECTION.

I got some of the extra-thin flat-bottom foundation of you two years ago. I tried it with poor success. It was so thin it would curl and get all out of shape; but when I discovered that I could fasten it in, almost like a drumhead, with a machine I made from the cut in your price list of the Gray fastener, we could use it a little lighter than the extra thin. I cut the sheets to inside dimension of the section, and fasten one end, turn and give the foundation a little tuck under and against the presser, which stretches it out and fastens it at the same time. It can be done pretty rapidly after a little practice, and it is a comfort to have the foundation so solid that any kind of rough treatment, even a tumble off the bench, will not break it out.

ONE-PIECE SECTIONS.

I do not like the one-piece section. It is too much trouble for me to twist up one corner of my eyes, and then the other, to get a square look at them. I do not like men, nor the products of their labor, that require a continuous outside pressure to keep them square. They are a little cheaper, which adds to the profit, and a little stronger, which is an advantage in jumping sections. I like the square section and a dash of Carniolan blood, as they are not such sticklers as Italians.

CHAPMAN HONEY-PLANT.

This is the best honey-plant I ever saw for its season. Friend C. said at the Indianapolis convention that the seeds were not provided with balloons to scatter it, but he failed to state that it had a chaff that would adhere to almost all passing objects, and that it had a way of arranging itself in the fluffiest possible manner on top of the ball, as if darning the winds for a trial of strength. I believe it will give our farmer neighbors just cause of complaint against us, if we allow the seeds to ripen. My crop is harvested, and arranged in a pile with balls inward, and some evening when it is dry we will have a war-dance around it.

HOVEN.

I have never heard of a death from clover-bloat where the wooden bit was fastened in the mouth. The process is described and illustrated in *Farm and Household Encyclopedia*. A. A. PARSONS.

Avon, Ind., Aug. 31, 1889.

Neither do I like men that require a good deal of outside pressure to keep them square. But you admit that the one-piece sections are a little cheaper and a little

stronger. I think these two points alone should settle the question.

REPORT FROM AUSTRALIA.

WHAT THE SPIRIT OF CHRIST IS DOING AMONG SAVAGES.

WE have just passed through a season of severe drought, which has caused us to lose heavily both in cattle and in the honey crop, which was a total failure. We have, however, every prospect of a good crop to come, as the drought has been broken by heavy rains, which, we trust, will give us an early and bountiful spring. We have had floods, but they were nothing in comparison to what it has pleased God to send you.

I read with much pleasure L. E. Mercer's little note in February GLEANINGS, entitled "Honest Bees and Honest Neighbors." It reminded me of something I heard the other day, which I thought at the time would please you. I had the pleasure of spending a few days with a missionary from the New Hebrides, who told me that, some years ago, he went home to Canada on a year's leave. While there it was considered advisable that he should remain and preach mission sermons throughout the Dominion. When he returned to Eromanga he had been away just two years and eight months. They had left their house open—not a key turned in cupboard or door, and they found every thing exactly as they left it. The trees they had planted had been carefully tended; the house and grounds were as clean and white as lime and pounded coral could make them; and during all that time no white man had set foot on that island. When we consider that, only a few years ago, these people were savages and cannibals, it speaks wonders for the work that has been done among them.

SOPHIE A. BRADLEY.

Campbelltown, New South Wales, June 10, 1889.

Many thanks, my good friend, for the delicate compliment you pay me. To be sure, it always pleases me to hear testimony that speaks of the power of Christ's love. My opinion is, that that missionary was respected and beloved by his people. It was out of love to him that they kept his house and garden in such neat trim for almost three years; and the little incident portrays what the love of Christ may do for the human heart; yes, even for the heart of a savage. Just think of the wonderful stride made in a few years, from cannibalism to Christianity!

A GOOD REPORT.

AN ENTHUSIASTIC BEGINNER'S EXPERIENCE.

I HAVE to report from Fillmore Co. a very good yield of honey for 1889. Although I am a very small bee-keeper compared with some of my neighbors, if we may judge others by ourselves, I feel safe in saying that the amount gathered is wonderful. I started with four good colonies, and a hive literally raised from the dead. I have always run my bees for extracted honey, and started out so this year, taking 33 gallons of white clover and basswood honey, and increasing

my stock to 10 colonies; then I put sections on five hives where the bees showed disposition to work in them. I shall get 25 pounds of this honey to the hive, and the hives are "chuck full" below (the whole 10).

BUCKWHEAT.

There has been a good buckwheat harvest, but this I have not extracted, as I should like to have the bees well fixed for winter; but some of my neighbors kept the extractor going all through August, and, of course, have more honey than I have.

BEE-STINGS OR HONEY FOR RHEUMATISM—WHICH?

I have thought over that bee-sting remedy for rheumatism, and have come to the conclusion that Prof. Cook is about the man to settle the question. I have had the disease, and have taken much of the medicine, and am very much better than I used to be; but I rather prefer to call honey the antidote, as I eat a good deal, and like it; but I can't say that I relish the sting.

GLEANINGS.

I take a deep interest in GLEANINGS. Every subject treated on captivates me completely, and I never tumble the leaves over for something better. I just begin with the very first page, and quit when I have to. The letters from foreign lands give me especial delight. I read the little letter from Scotland over several times.

C. C. MILLER'S METHOD OF NUMBERING HIVES.

C. C. Miller's hints are worth many times the cost of the journal to new hands at bee-keeping. Numbering hives is a great help, and I shall have a number on all my hives after this, for now I have to name them, and No. 4 is much easier to speak or understand than to say the "red-topped hive," or "the hive over next to the cottonwood."

A QUEEN-CELL ON DRONE COMB.

My neighbor showed me a queen-cell on drone comb, and says they frequently make them so. This is new to me, and I am slow to believe that bees are so stupid. What says GLEANINGS?

Preston, Minn., Sept. 2, 1889. F. A. CUMMINGS.

Bees do quite frequently start queen-cells on drone comb. In this case, however, they are smooth on the outside, instead of having the usual indentations. The drone larvæ, however, instead of becoming a king is evidently sickened or put out by the royal jelly, for he soon dies. Yes, the bees are sometimes just so stupid.

THE MATING OF A QUEEN AND DRONE BUMBLE-BEE.

WHAT AN EYE-WITNESS SAW.

I SAW a queen bumble-bee mate to-day; and thinking it would be of some interest to others I will tell what I saw of it. It was at 11:30 A. M., while I was cradling buckwheat. I heard the buzzing of bees, and on looking down in front of me I saw a queen, and a drone bumble-bee on her back, and another drone flying about them, trying to get hold of the queen. The queen was then walking on the ground. I drove the drone away that was flying. Then the queen became quiet; then they mated. I waited nearly four minutes, then killed them both. I will send them to you by mail as proof of what I have described.

I think that honey-bees must mate in a way very

much as the bumble-bees do. About two weeks ago I was working some 40 yards away from my yard, where I have 25 nuclei. My attention was called by hearing an unusual buzzing over my head. I saw a small cluster of about 15 or 20 bees flying about 15 feet high. They seemed to rush together and fall nearly to the ground, then start in another direction, and again rush together, but each time they seemed to lose nearly half of their number. I saw them rush together three times before they were out of my sight. From what I saw to-day I am quite sure that it was a queen taking her flight.

C. M. WOOLVER.

Richfield Spa., N. Y., Sept. 9, 1889.

We sent the above, together with the two bumble-bees, to Prof. Cook, who replies as follows:

Friend Root:—I thank you for the specimens. As you will see in my Bee-Keeper's Guide, p. 92, I have seen the same thing. Mr. Woolver leads us to think that the mating was done after the bees fell to the ground. Is he sure of this? In cases seen by me, copulation seemed to be accomplished while yet on the wing; yet in all cases the bees, while in copulo, fall to the ground. I had supposed that the expiring male drew the queen to the earth, and that the queen then pulled away, bearing with her a part of the reproductive apparatus of the male. It would be interesting to know if the drone and queen of our honey-bees, while in copulo, fall to the earth. If so, it would be strange that no one ever yet saw them. Has anyone ever witnessed such an event? In one case that I saw some years ago, a queen bumble-bee was dragging a nearly dead drone along the earth while yet in copulo. I believe this the method of gaining freedom, among bumble-bees.

A. J. COOK.

Agricultural College, Mich.

ALBINO BEES.

PROF. COOK GIVES HIS OPINION IN REGARD TO THEM.

IT is well known that a true albino is really a diseased or imperfect organism. For some cause, the tissues which usually secrete pigment, or coloring matter, are unable to do so.

The hair is white, the exposed skin is pink, as its transparency hides not the blood in the superficial blood-vessels, and for like cause the eyes are pink. Thus the skin in a human albino is tender, and the eyes are so unprotected that they can not bear the light of day. A hare lip is no more a malformation than is albinism. The fact that man, by selection, has perpetuated this peculiarity in some animals makes it none the less a diseased condition. All animals tend to reproduce unfavorable as well as useful peculiarities. I have read that albinos often intermarry, and thus there is unfortunately a tendency to increase and perpetuate this diseased condition among people. Now, I do not think this any argument against the so-called albino bees. Scientifically such bees are not albinos. They are not white. They only show more white than others of their race. Thus, if I am correct, these bees are no worse for their characteristics. They are not physiologically deficient as are true albinos, but only sports, or more properly varieties. Now, if, as varieties, they have valuable characteristics, as their friends claim, then they are superior. Their

lighter color enables us to distinguish them, and, if persistent, marks them as a distinct variety. They are no better or worse for it. While the name albino is not really correct as applied to these bees, yet there is no harm in its use. As yet, I have never seen one true albino bee. Yet I have seen albino crickets and cockroaches. There is no reason why we may not have one of these physiologically imperfect bees. Even should this occur it would cause no trouble. We all know that albino bees, as sold in the market, are simply a light variety of the Italian race, and no trouble need occur. True albinos will be very rare at best, and never can cause any serious misunderstanding. A. J. COOK.

Agricultural College, Mich.

I believe I entirely agree with you, only I do not like the term "albino," as applied to bees. A good many people get the idea that they are to have a bee that is perfectly white, or very nearly so; and when they receive bees so near like the ordinary Italians, they are very apt to be disappointed, and sometimes claim that they have been swindled. We did once have a strain of so-called albinos that showed rings of a creamy white, as well as of yellow and black. It gave the bees a singular look, something like white-ringed hornets, but they were like Italians in every other respect, so far as we could discover. These came the nearest to being albinos of any thing we have ever seen.

EXTRACTORS AND THEIR CONSTRUCTION.

E. FRANCE GIVES US SOME VALUABLE SUGGESTIONS.

I AM asked to give a description of my honey-extractor. The one I use is a very common one. It is the Chapman with some little alterations to make it fit my large frames, and to do faster work.

MY FIRST MACHINE, AND SOME OF ITS DEFECTS.

I don't know just how long it is since I got my first machine. I have no records further back than 1877; but at that time I had one extractor—the old revolving can—made by Winder, with an outlet under the bottom. The outlet was so small that I could plug the hole with the end of my finger. After I had extracted two combs and stopped the machine the honey would run out, if the outlet was not choked. But it very often clogged with a bit of capping or some pieces of comb. I kept a pail under the machine to catch the honey. When I emptied the pail I had to whirl the machine to keep the honey from running out, and then empty the pail when the machine was in motion. That extractor, unhandy as it was, cost me \$20.00. At that time I had two or three out-apiaries, and used to take the extractor and honey-kegs and all fixtures, including help, all in one wagon, and stay over night, and come home when we had finished.

THE NECESSITY OF HAVING MORE THAN ONE UNCAPPING-KNIFE OR EXTRACTOR.

For the first three or four years I had only one uncapping-knife. But as our business increased I got another. Now, it just happened that, a short time after I got our second knife, we broke one of the knives. That just set me to thinking, "Suppose we should break our extractor right in the midst of our extracting season; it would take ten

days or more to get another. All work would have to stop, and the loss of time would be several times the cost of another extractor." So I resolved to get another machine.

THE CHAPMAN EXTRACTOR.

One of my neighbors had a Chapman extractor, and I could possibly work my frames in it, but it was too small to be handy. But I sent an order to Mr. Chapman to make me a machine, and sent him two of my frames so as to be sure to get it big enough. I wanted the comb-basket made out of heavy wire cloth at least as coarse as three meshes to the inch. We got the machine. The wire-cloth basket was a good deal finer than I ordered, and the basket was too small every way for quick work. A clean frame, with no bits of brace-combs on top or sides, would go in nicely; but as the combs came from the hives they made trouble.

THE HOME-MADE MACHINE.

After using that a year or two I concluded to make one to suit me; so in the fore part of winter I sent and got two sets of upright gearing and some wire cloth—enough for two machines. During the winter I made the two machines. The old Chapman had a 1½-inch honey-gate. I put 2-inch ones in the new machines, and also a 2-inch gate in the old Chapman.

I made the comb-basket larger and deeper; raised the basket higher from the bottom, so that it would hold more honey. Of course, the outside can is made larger. It will hold now, as I made the last ones, 70 lbs. of honey below the basket.

I don't think that the machines that I use are perfect; but for my use, with my large frames, they are the best I have seen. There is a good substantial frame around them that protects them, and they stand on four legs and don't jump and run all over creation when in use, but stay where we put them.

Now, let me say here that the Chapman extractor, as he makes it, is large enough for most frames in use, and is a good machine. The only trouble in my case was, that my frame was too big for it, and so I had to make the machine to fit the frame. I made the comb-basket of heavy tinned wire cloth, two meshes to the inch. That is fine enough.

UPRIGHT GEARING.

I use the upright gearing because I think it is best, and I believe it is easier to work. Perhaps it is just a matter of opinion with me. My first machine had the upright gearing, and I have never had any other. But I helped a man extract about two hours with a Novice machine that had the horizontal gearing. I did not like the movement. I decidedly prefer the upright. Perhaps my preference is all in the use of the upright.

WHY I PREFER TO HAVE THE EXTRACTOR-CAN ENCASED IN A WOODEN FRAME.

First, the frame is a great protection to the can; it keeps it from being jammed; second, the machine is always ready for work, as it stands up from the ground or floor high enough to set a pail under to catch the honey. I see no use of a box or stand to set the machine on, in order to have it high enough to drain off the honey. The frame gives us four legs for the machine to stand on; and as we do the most of our extracting on a ground floor, we can easily adjust the machine so it will stand level and firm. The frame gives us a large base, which goes a great way toward keeping the machine steady, and prevents its jumping while in

use. Of course, the machine takes up a little more room; but room out here is cheap. We keep one extractor at each yard, besides an extra one at home. We prefer to have the

EXTRACTOR-BASKET WITH SLOPING SIDES.

so that, when we set in a frame against the wire cloth, it will stay there and not drop over against the center-shaft before we get up the motion. The reason I make the comb-basket frame of wood, in place of metal, is, that the one I patterned from was wood, and for me I could make them cheaper of wood, and I think them just as good as the metal.

HONEY FLYING OVER THE TOP OF THE CAN.

As for the honey flying over the top of the machine, with our old revolving can the honey did fly over the top; but the machine we now use never throws honey over the top of the can. Our extractors now have a cover over a little more than half of the top, when in use, and I think the cover helps to keep the honey from flying over the can. The frames—that is, the combs in the frames—when in the machine are two inches below the top of the

the top, when the machine is not in use, to keep out all kinds of dirt.

To get something of an idea of the proper size of the machine, I had my son stand by the side of it. He has in his hand one of our honey-combs. He holds the comb by the bottom-bar. We set them in the extractor, top end down. That is the style of frame that we use the most of. We have 64 colonies in which we use two tiers of those frames.

Our extractors hold 70 lbs. of honey below the comb-basket. We have a pail 8 inches high that will hold 40 lbs. of honey, made like a milk-strainer pail, with one-half of the top covered, only we have a hole without the strainer. When we are at work extracting we keep the pail under the faucet, ready to draw honey into as often as we wish. Then we have a keg that holds 140 lbs. of honey—one head out. Over the open end of the strainer-keg we tie one yard of cheese-cloth; through the side of the strainer-keg, close to the bottom, we have a 1½-inch faucet. We stand one of our honey-barrels on end on the ground. On this barrel we place our strainer-keg. As we draw the honey from the extractor, we pour it into the strainer-keg on the strainer. By the side of the barrel that the strainer stands on we dig a hole about 5 or 6 inches deep, in which we stand an empty honey-barrel, with a funnel under the faucet of the strainer. We draw honey from the strainer until the barrel is full, when the barrel is plugged up tight, taken home and put into the honey-house. The plugs are not loosened, but stay just as they come from the field until sold. I think the honey will keep better if it is air-tight.

A REVERSING EXTRACTOR.

Now, what do I think about a four-comb extractor, and reversing extractors? It would be a great saving in time to have an extractor in which we could reverse the combs without taking them out of the machine, and I should have ordered one before now; but our frames are of an unusual size. The machine would have to be made specially for our frame, and would cost more. As I have never seen one of them, and don't know yet whether they are a success or not, I don't like to invest until I know more about them. The cut in the advertisement doesn't show any gearing, and I should think the motion would be too slow.

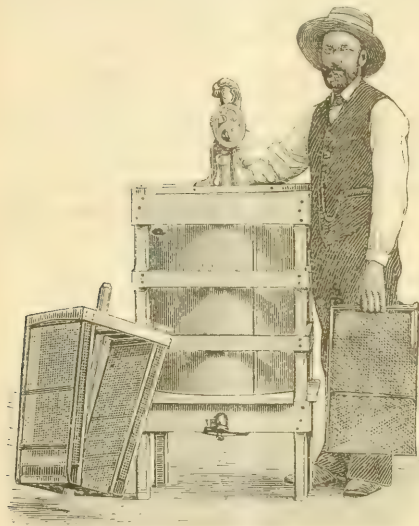
A FOUR-COMB EXTRACTOR.

I don't see much advantage in a four-frame machine. It would take as long to set four frames in a four-frame machine as it would in a two-frame machine, and as long to take them out; all the time saved would be in starting and stopping the motion, and that doesn't amount to much, and the machine would have to be larger.

E. FRANCE.

Platteville, Wis., Sept. 16, 1889.

Our readers will notice that friend France uses a different extractor, because he has out-apiaries. We have made extractors almost exactly like the one described above; but we discontinued adding the heavy wooden frame, because in almost every locality the bee-keeper can make it or buy it cheaper than to pay express or freight on it. Another thing, we always practice and recommend arranging the extractor so as to run the honey and strain it directly into the bung-hole of the barrel, thus saving the troublesome operation of lifting it up to pour it somewhere every time you get a



E. FRANCE'S HONEY-EXTRACTOR.

can; and here I think that the slanting side of the comb-basket has a tendency to throw the honey down and thus help to keep it from flying over the top.

THE SIZE OF OUR EXTRACTORS.

Our extractor-can is 2 feet 2¼ inches high, 22¼ inches in diameter, inside measure, across the top of the can. The frame is 3 feet 5¼ inches high; width, 2 feet and ¾ of an inch; 14½ inches from bottom of legs to bottom of can. The lower and upper bands around the frame are 5 inches wide. The other two are 2 inches wide; the legs are 1¼ inches square, all pine lumber. The top of the frame has a board cover, a three-cornered piece that covers a little more than half of the top. This part of the cover is fastened with screws to the top of the frame, and the gearing is fastened to it. There is a hole near the edge of this cover-board, through which the center-shaft of the comb-basket passes. Then we have another three-cornered board, with dowel-pins, to slip on the open part of

painful. The pail is almost sure to be neglected by somebody, and then what a mess, no matter whether it is on the ground or on the floor! Besides, lifting all your crop of honey by the painful is a tiresome, slow, and laborious operation. In the large apiaries in California, no such arrangement is tolerated. Where we have a great number of out-apiaries, however, it may be impracticable to have them all rigged so as to run the honey direct into barrels, or, better still, a large tank. In a good many apiaries, I have seen the honey-house located on a side-hill. The extracting is all done in the upper part of the building, while the basement contains the barrels, a large tank, or other receptacle. In California they often locate a large tank somewhere by the roadside, on lower ground; then when the honey is to be marketed it is allowed to run of itself into whatever package is decided upon, said package being already in the wagon, ready to be drawn away. No one should ever think of working an extractor that could by any possibility jump around. Ours have screw-holes and screws to fasten the extractor solid to a bench or box, or such a platform as may be decided upon. Extractor-baskets with sloping sides are somewhat more convenient; but the upper end of the combs furthest away from the central shaft will always be emptied soonest, or emptied more thoroughly. I believe the honey will never fly over the can if the combs are two inches lower than the top edge of the extractor. Large revolving baskets, made so as to swing the comb a good way off from the central shaft, do not need gearing; in fact, almost every body would eventually prefer them without; for in getting your combs a good way off from the shaft, you get the same speed without gearing that you would otherwise with. Most bee-keepers prefer to let the honey evaporate more or less by exposing it to the air, when the can or barrel should be open at the top. Friend France, however, has never found this necessary. Perhaps I should say that the above information of friend F. was given in reply to a series of questions asked by Ernest.

POISONOUS REPTILES OF FLORIDA.

THE BLACK GRAMPUS, ETC.

I SEE in August GLEANINGS an inquiry concerning the "black grampus" of Florida. This bug was one of the first of Florida's curious things to attract my notice when I came here three years ago. It is the *Thelyphonus giganteus* of the scientists; and, though very unlike the spider in habit and appearance, it is a member of the same family. Its home is in damp, rotting wood. Piles of refuse lumber that have been undisturbed for a few months are pretty certain to disclose a grampus when turned over. It is about two inches in length, and almost half an inch across the back; is brownish black in color, and has a front ugly and warlike enough to intimidate even a professional bug-catcher. The thorax is protected by a hard, polished coat of mail; and, in addition to three pairs of scratchy-looking legs, has a pair of claws and a sort of stone-crushing apparatus that would

do credit to a lobster. These claws each terminate in a pair of short curved needles, and are in every respect well calculated to hold fast all they can clutch.

The hind part of the body is soft, and ends in a slender, whip-like wiry tail, which is as long as the body, is carried upright, and furnished with numerous short, almost microscopic hairs, all pointing toward the terminal end. Near the root of this tail is a vent, from which, when irritated, it discharges a clear, acrid, malodorous fluid.

Its mode of attack and defense is to lacerate its victim with those horrible claws, and then, discharging this poison, it switches its tail over its back. The wiry, hair-set tail is well adapted to carry the venom and throw it into the wound. Its effect is not fatal to man or beast. I know a building-contractor who has been scratched by them several times. He says the pain is but little worse than that caused by a wasp or hornet sting, though the wound is longer healing.

Many of the negroes believe its bite to be fatal, and are much afraid of them; but it is generally considered harmless, unless you put your fingers or toes in its embrace. I shall be glad to send the first one I can find to Prof. Cook, and I hope he will give us a scientific description of it.

THAT SNAKE THAT BREAKS IN TWO.

I have never heard of the snake that breaks in two like a dry stick, and survives the break; and I venture the guess that it is one of the kind of snakes seen only by those who "look upon the wine when it is red."

No one need fear to come to Florida on account of venomous reptiles and insects. I have killed more snakes in Pennsylvania meadows in half a day's mowing than I have seen here in three years; and many persons have lived here for years, and never even heard of the grampus and scorpion.

Orlando, Fla., Sept. 6, 1889.

E. J. BAIRD.

This matter is certainly interesting to me. The idea that the grampus makes wounds with its claws and then throws poison into the wounds is wonderful; and it is especially interesting to those who have studied bees, because it is so nearly in a line with the wonderful phenomenon of the bee-sting. In regard to snakes that break in two, will Prof. Cook straighten us out on the matter? If I am correct, the *Scientific American* stated, some years ago, that there was a snake answering somewhat to these accounts; but, if I am correct, the part that breaks off is a horny substance, somewhat like the rattles of the rattlesnake. Of course, this part has no life in it, either before or after separation.

Hello! Here are some facts from a brother, right to the point:

THOSE SNAKES THAT BREAK IN TWO AND DO NOT BLEED.

I see that one of your correspondents talks about a snake that can be broken in pieces, the head run off, etc. Now, we have that fellow here, but not very common. When I first came to this country from Ohio, the natives used to tell about this snake, and I did not believe one word of it; but I soon came across one. They are from 18 to 24 inches long, and look very much like our common garter-snake when he first sheds his old coat—very slick and shiny, head longer and slimmer. It can run very fast in the grass, but can hardly cross a road

or run on bare ground at all; hence they are called by some, "grass-snakes," and that is how I got the first one. It was trying to cross a dusty road. I hit it with a small stick, and, sure enough, it was in two pieces, and I discovered I had found a joint-snake; then I proceeded to examine his snakeship, and proceeded to hit him and break him as square off as you could cut with a sharp knife until there was only three or four inches of the head left; then I discovered that that three or four inches of the head was all the body there was; the rest was tail; this short body could move a little, but make no headway. No blood came from breaking. I guess this will do for a snake.

E. MCINTYRE.

Memphis, Mo., Sept. 12, 1889.

Well, I declare! who shall say after this that there is any thing queer on the whole face of the earth, that some reader of GLEANINGS can not tell us something about? I can readily conceive that almost the whole body of the snake should be a horny substance like the rattles of a rattle-snake; but of course this horny substance that breaks in two without bleeding can have no muscles or motion about it. This being so, I do not see how the snake can crawl, unless the crawling apparatus is close to the head and pulls the horny body after it. Now, friend M., how do you know that the head part did not go back and hitch on to the other pieces, after you went away? Why does not somebody have one of these snakes in a museum, and break off a piece now and then for the entertainment of visitors? Prof. Cook, we need you sadly right here; and can you not, by offering a sufficient reward, get a grass-snake for your museum? If you can not get a live one, by all means get a dead one; and if you can not get a whole one, get some of the "connecting links," or even an inch or two would be quite an acquisition.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

GAURA COCCINEA.

I have received from N. M. Hallister, Fayetteville, Ark., a plant in bloom, of which he writes: "Bees are gathering bountifully of both honey and pollen from these flowers. The plant grows six feet high; has a smooth stem-stalk, and a whitish pink bloom. I have a field of buckwheat within three-fourths of a mile, yet the bulk of my bees go two miles, right past the buckwheat, for this plant, which grows on the river and lowlands. Please name it through GLEANINGS."

This is *Gaura coccinea*, a beautiful flower closely related to our northern fireweed or tall willow herb. I supposed it was a species of *epilobium* till Dr. Beal gave me the correct name. Thus we have another valued honey-plant from the "evening primrose" family.

A. J. COOK.

Agricultural College, Mich., Sept. 3, 1889.

DOES THE CASTOR-OIL BEAN YIELD HONEY?

Can any one who lives in a section of country where castor-oil beans are grown for the market, tell if the bees gather much honey from it? They work on the bloom here all day long, from the first

of June until frost kills, and that was last year after Christmas. They get pollen only late in the fall. The beans are not planted enough here to know whether it would pay; but I think they certainly would.

G. W. BISTLINE.

Mt. Pleasant, Texas, Sept. 5, 1889.

I believe the castor-oil bean does yield honey, but we have never had any reports in regard to the amount, so far as I can recollect. If any of our readers can tell us how much honey they get where the beans are raised largely for oil, we should be glad to hear from them.

COMBS BREAKING DOWN IN EXTRACTING.

I am in trouble concerning my extracting-combs. I have the heavy brood foundation, and wired frames as directed, and I have beautiful combs all straight and all sealed, made above a queen-excluding honey-board. They are the Simplicity frames, but my combs all break down in the extractor. I have the Novice extractor and honey-knife; and when I uncap them the cells are easily broken from the foundation, and it all breaks out of frames and wires, and settles into the wires of the extractor. I have worked hard to have my combs up to science this year. The honey seems heavy, and cells tender. Are mine too new? Do I have to work two or three years for old tough combs, or is it because I don't know how to uncap? Please fully explain my trouble, or refer my letter to some who will. I get the honey from only one side, and then all breaks down. How I should love to visit Mr. France's apiary! You were there, so please explain my trouble. I am getting beautiful comb honey. My working colonies have averaged 150 lbs. a colony, and they are just finishing the second crop of alfalfa; and next month we shall have the third crop of it.

Delta, Col., Aug. 9, 1889. MRS. A. A. HODGDON.

I am quite at a loss to understand why your combs broke down. I have never heard of such a thing with wired combs, and we often extract them when they are not half built out, or only half fill the frames. Do you not turn the extractor faster than is necessary to throw out the honey? If you turn too fast in emptying the first side, the combs will sometimes settle down into the wire cloth, especially if the weather be very hot. At such times we have extracted part of one side, then the whole of the other, and lastly throwing it all out of the first side. Perhaps your honey is extra thick.

THE WEIGHT OF THE DOVETAILED HIVE; HOW TO TELL HOW MUCH TO FEED TO EACH COLONY.

Please give me the weight of a Dovetailed hive, with frames, top and bottom boards; also weight of Simplicity No. 6, as above. I wish to determine the amount of honey in hives, for winter use. Will you kindly tell me how?

J. B. ENOS.

Connellsville, Pa., Sept. 9, 1889.

Our No. 1 Dovetailed hive, as per our price list, weighs about 30 lbs.; the No. 2 Dovetailed, about 40; and the No. 6 Simplicity, 50 lbs. An average Langstroth comb, filled, contains about 5 lbs. of capped honey. Estimate from this the proportionate amount in each comb. Their sum subtracted from 20 to 30 lbs. of honey (the amount usually allowed per colony on summer stands), will give the amount required

to be fed. A little practice in "hefting" and estimating will enable you to become correct enough for all practical purposes.

HOW MUCH CAN WE AFFORD TO PAY FOR A COMB-HONEY PACKAGE?

Will it pay to invest, at a cost of 1½ cents per lb. for comb honey? Could I get my money back by an increased price for my honey?

Canadice, N. Y., Aug. 2.

L. M. DOOLITTLE.

The question as to whether it will pay to invest a cent and a half a pound for a package to hold comb honey, in addition to the price of the sections, is a hard one to settle. You would have to determine, as nearly as you can, how much the honey costs you to produce it. Knowing the market price you could then decide for yourself better how much you could afford to pay for a package. Of course, you want to reserve as large a margin as you can, after getting the honey upon the market.

A BEAUTIFUL SPOT.

Bees are not doing much here now. Forest fires are raging in the mountains, and will destroy the most of the fall bloom. Many a stray swarm will have to pay for its folly with its life, that sailed gracefully away amid the ringing of bells and a great blast of trumpets for their new home in the forest, while a very sorry looking bee-keeper stood with his hat off, trying to keep cool. The timber on the mountain in front of my place is enveloped in flames. It is a grand sight, as the mountain is about 9000 feet high, and the timber extends up for 8000 feet. The burning forest is at night reflected from 13 mountain lakes around its base, while Mt. Shasta and Lassen's Peak stand to the north, wrapped in a mantle of snow. Who wouldn't be a bee-keeper in the Sierra Nevadas? I think if A. I. Root were here he could listen to the songs of birds and the music of the falling waters to his heart's content, and gaze into crystal lakes that would equal any thing he saw in Southern California. I almost forgot to mention the speckled beauties that he would find in their native haunts. Think of camping on the shores of a beautiful mountain lake, and wandering over grassy slopes to catch a mess of trout for your breakfast. G. W. COVER.

Downieville, Cal., Sept. 2, 1889.

I know I missed a great deal in not visiting the northern part of California, especially round about San Francisco; but when I make my next visit I will try to give you a call.

BEE-STINGS A CURE FOR RHEUMATISM.

I see there is one adverse report by Mrs. John Burr, in regard to bee-stings for rheumatism. Would she expect to be cured of so serious a disease by one or two good stings, or one or two doses from the best doctor in the land? Let her persist in keeping bees, and get stung a few years as much as I have, and she will have to die of something else. I had noticed, before this thing was mentioned in the bee-papers (to my knowledge), that my rheumatism was playing out, and that I should never get a pension on that if it didn't return, which I think there is no hope of, as long as I keep bees, for I have no small help to keep the smoker going; and, my word for it, I would rather take the punishment that Sullivan gave to Kilrain than to face it sometimes. But at the same time I

would rather stand stings than rheumatism, and have pain enough to draw your arms, legs, and muscles, up into knots.

Pine Grove, O., Sept. 7, 1889.

S. DANIELS.

HOW TO KILL A SWARM OF BEES.

Will you kindly give me your advice as to the best way of killing a swarm of bees when their winter supplies are too small? I am a friend of the little fellows, and a new hand in the work, and I should like to have your advice.

G. H. GILBERT.

Martell, Wis., Aug. 30, 1889.

Why, friend G., if you are a friend of the little fellows, what do you want to kill them for? Modern bee culture does not include any process for killing bees. Instead of buying brimstone, we now buy sugar; and the bees are almost certain to pay back the money with good interest, the very first season, what the sugar cost. If you can't keep bees without wanting some process to kill them, excuse me if I suggest, in a kind and friendly way, that you give up the business.

A NARROW (?) ESCAPE.

Mr. Root:—You came very near having to pay the thousand-dollar reward; but your time is too valuable to go into all of the details. It was claimed by one of the "smart Alecks" who know every thing that is going on, that he knew a man who could make the comb and fill it with honey, as he saw it done. So I asked for the man's name, and he mentioned one whom I knew very well. So I sent a boy to friend H., and got them together. To sum up, he saw him making foundation and extracting honey, and that was all there was of it. How ashamed he was, after it was explained to him! Perry, N. Y., Sept. 8, 1889. JOS. R. WRIGHT.

RAISING QUEENS ABOVE PERFORATED METAL.

I have had some experience with raising queen-cells over a zinc honey-board. It worked well till the last batch; out of curiosity I looked at them four days before they were to hatch, and found three torn down. I cut out all but one, and left it to see what they would do with it; in 48 hours I looked and it was gone. No queen had hatched to tear them down. The honey-flow had partly failed, but they were still storing some surplus.

SHIPPING HONEY.

How should honey be shipped—by freight or express? and would distance make any difference? This is the first year we have had a crop since 1886. We have never shipped any. Our home market is full of 10-cent honey; we have no such for sale.

The Ignotum tomatoes are doing fine; they are the best-flavored tomatoes I ever tasted.

Swedona, Ill., Sept. 4, 1889.

S. F. TREGO.

I believe the general decision is, that honey of all kinds should go by freight. Express is expensive for any thing that is not worth more than 15 or 18 cents a pound; and although express should be safer than freight, experience seems to indicate that it is even more apt to be injured than by freight. But be sure to put the ends of the sections toward the locomotive.

RUBBER ROOFING IN LIEU OF TIN, FOR HIVES.

Please answer through GLEANINGS what you think of this rubber roofing that is used to cover buildings. Would it not do to use to cover beehives? You know how it is about leaky covers to hives. I believe this roofing is the very thing. It is

cheap, and much better than tin. I have not used any of it. I have just received samples, and I believe it will answer the purpose. You see any kind of lumber can be used that is picked up, almost, and make a good cover. C. H. MCFADDEN.

Clarksburg, Mo., Sept. 7, 1889.

I have never seen any rubber roofing that was a success for any length of time. I do not believe there is any thing made that would compare favorably with tin.

CHAFF-HIVE ENTRANCES TOO SMALL.

I was visiting a bee-keeper lately, and had quite a discussion with him concerning the hives he was using. He had 107 stands, I believe, and only about 12 or 15 of them were chaff hives, while the rest were Simplicity. He told me that there was not room for ventilation in the chaff hive, with an entrance $8 \times \frac{3}{4}$ inches. He says it is almost impossible to keep the bees inside in very hot weather. I have had the same trouble this summer. I have 26 chaff hives, and with all the shade I could give I would frequently have the front of the hive covered with bees. Will you please tell me what is the matter? My bees have given little or no honey this year. I am proud of GLEANINGS, and wish it and its publisher success. S. R. HOLBERT.

Watson, W. Va., Sept. 5, 1889.

Our chaff-hive entrances heretofore have been too small, and we now make them the full width of the hive. The clustering on the outside has been caused largely by entrances being too small.

SKUNKS AND BEES.

Skunks sometimes trouble me late in the fall. One hive has a place where they have scratched more than a fourth of an inch deep in the front of it. When grasshoppers, crickets, and the other bugs and worms they live on are mostly gone, they go for the bees. I use a box trap to catch them. One fall I caught four. They seldom scent if drowned in a trap, and their hides and oil in November are usually worth from 75 cents to \$1.50 each. J. L. HUBBARD.

Walpole, N. H., Sept. 11, 1889.

SKUNKS; AN EASY WAY OF CATCHING AND KILLING THEM.

To help friend Doolittle and others out a little, I will tell him how to destroy these pests. Some years ago, when I lived in California, I set traps to catch foxes, and soon caught, in all, 13 skunks in box traps; but to get clear of them without spoiling my traps, and not have other disagreeable results, was a question at first difficult but afterward easy to solve. I will now talk direct to Mr. D. Make a box trap of the old-fashioned kind, with a fall lid, say 10×10 inches, and 2 ft. long. Smear a fresh egg on the bottom and inside. Bait with an egg, and set near your bees where the skunks come. The next morning you will be pretty sure to have the gentleman. The terrible odor of a skunk is his weapon of defense, and is never used except as a last resort, and in an emergency. As it is as offensive to themselves as it is to any thing else, no fears need be entertained. Pick the trap right up under your arms, on your shoulder, or in any way, and carry it as far as you wish, only handle it without thumps or jars. Into a pool of water fully large and deep enough to surely cover the whole trap, immerse it and hold it there five minutes, and very

seldom any smell will be raised at all. Once in a while one will give a scent when immersed in the water, but not often; but you need have no fears in handling the box so long as you do it gently. I handled the thirteen so, without any trouble.

A. A. FRADENBURG.

Port Washington, O., Aug. 2, 1889.

MINERAL WAX; SOMETHING FROM ONE OF OUR SUBSCRIBERS IN THE REGION; SEE GLEANINGS FOR JULY 15.

I live about 20 miles from the wax referred to in the clipping. This is the only mine from which wax has been shipped, as yet, in this region. The mine has been worked about 3 years. This is nearly pure asphaltum. It is sent to Price Station, 100 miles, in wagons. The mountains near Price River, on the D. & R. G. R. R., also abound in mineral wax of various kinds. The best is elaterite, or mineral gutta percha; ozocerite, and others of less value. There are large quantities containing paraffine wax. This, in its crude state, is good chewing-gum. These latter have just been discovered, and are still undeveloped. They are all jet black, and nothing like beeswax, and never will compete with that article. There is no other wax of that description in Utah, that I know of. BART BARTLETT.

Vernal, Utah, Aug. 26, 1889.

Many thanks, friend B. Near the Ojai hot springs, in the vicinity of San Buenaventura, I saw mineral wax, or bitumen, exuding from the hills in such quantities that for quite a distance it made a hard roadway for the horses. At other points it was so soft that the turkeys got it daubed on their feet, and were in great distress because the leaves, feathers, and every thing else, clung to them so as to impede their walking. This wax was, however, as you say, black, and nothing like beeswax. I am inclined to think, however, that there is something somewhere in these great Western wilds that is a pretty fair substitute for beeswax and paraffine. Can anybody else tell us about it?

HONEY FROM GROUND IVY, AFTER JACK FROST.

Last fall, after Jack Frost had already destroyed all visible flower life, I prepared to store away my pets for the long dreary winter; and upon an inspection several days thereafter, I found, to my utter surprise, enough uncapped honey to equalize three pounds, in the hives. The question now arose, Where did this honey come from, and where did the bees obtain it? As the honey-house was intact, they did not get it from that source. After close watching I noticed the bee-line leading toward the river; and being well posted about the surrounding flora I skirmished the country over hills and valleys, but all in vain, as the frost had done its work completely. At last, and not far distant from my house, I found my truant yellow jackets busily engaged on a heavily overgrown piece of ground ivy, *Glechoma hederacea*, the tops of which, being affected by the frost, yet left the lower parts in a good state and in full bloom. On tasting the honey I found it to be very bitter; and fearing it to be injurious to my bees I extracted it and destroyed the plants. The honey granulates easily, and is of a greenish-white color. As stated before, I obtained three pounds. In its proper soil, the plant becomes of a strong, creeping growth, the blossom being of a blue, purplish color, and is one of the

last to be destroyed by the frost. I inclose you a sample of the plant. CHRISTIAN ILLIG.

New Athens, Ill., Aug. 12, 1889.

If you are talking about the same plant described in the A B C book, under the name of gill-over-the-ground, I am surprised that you find the honey bitter. In our locality there is seldom enough of it to extract, but the flavor is not at all unpleasant. It is, however, a terribly bad weed, and on that account I think you did well in destroying it.

JAPANESE BUCKWHEAT IN EIGHT WEEKS.

I sowed the peck of Japanese buckwheat I got of you June 20th, and send you a sample picked eight weeks after. Of course, it is not all ripe, but will be before long. I sowed it on 50 rods of ground, and it is too thick. It stands from three to four feet high, with blossoms on branches nearly to the ground, and is filling nicely. Bees worked on it well in the forenoon each day. I have sown a few kernels for a second crop.

Our honey crop here is about half what we expected, but the quality is good. Bees had the worst kind of swarming fever, but basswood bloom was of short duration, and then swarming ceased.

Linden, N. Y., Aug. 20, 1889.

E. L. EIGHMY.

REMINGTON'S PHARMACY; MORE FALSEHOODS.

Remington's Pharmacy was copyrighted in 1885. I have the 1888 edition. Joseph P. Remington, the author, is professor of theory and practice of pharmacy, and director of the pharmaceutical laboratory in the Philadelphia College of Pharmacy. He was also first vice-chairman of the committee of revision and publication of the U. S. Pharmacopoeia, and pharmaceutical editor of the U. S. Dispensatory. J. B. Lippincott & Co., Philadelphia, are publishers. On page 279, speaking of mellita, or preparation containing honey, he also says, "Their advantages over syrup are not very apparent, particularly since of late years the difficulty of obtaining pure honey has greatly increased."

GEO. F. WILLIAMS.

New Philadelphia, O., Aug. 20, 1889.

HONEY-BOARDS; THE DIFFERENT KINDS OF QUEENS.

I should like to know whether or not there is a patent on the break-joint honey-board, queen-excluder, and Heddon hive. Also, what is meant by mismated, untested, warranted, and tested queens?

CHAS. S. LEWIS.

Litchfield, Ill., Aug. 14, 1889.

There is no patent on the honey-board. Mismated queen means a hybrid, or a queen which is supposed to be an Italian herself, but has met a black drone. An untested is one that is a pure queen herself, but no guarantee is made as to whether she has met a pure drone; she has been laying only about a week. If kept in the hive three weeks or a month, and her workers are pure, she is called tested. A warranted queen is an untested queen, but the breeder guarantees that she will prove to be pure. If in the hands of the purchaser she turns out to be a hybrid or a "mismated," the breeder agrees to send another until he succeeds in sending a pure queen. As there is a good chance for jangles, and also a chance for a customer to claim his warranted is a

hybrid when she was not, we have never sold queens in that way. Sell goods for what you *know* them to be, and you will avoid many disputes.

BEES AS THICK ON RED CLOVER AS ON WHITE.

Bees are gathering enough honey to keep them from robbing, and to carry on queen-rearing nicely. I was wondering where they were getting it; and so, yesterday I took a walk at 1 P. M., to a twenty-acre field of red clover, about one-fourth mile from my apiary; and I must say that I never saw bees as thick on red clover before. They were as thick as I ever saw them on white clover. I caged twenty queens this afternoon, beginning at 2, without any robbing at all. May God be praised for his bountiful blessings.

J. P. MOORE.

Morgan, Ky., Aug. 27, 1889.

RED CLOVER A HONEY-YIELDER IN MISSOURI.

I notice in the answers to Question 136 that a large portion of the writers seem to consider red clover of very little importance as a honey-producing plant. This year, at about the time that honey ceased from white clover, we had a field of red clover in full bloom (the second crop), and I am sure I never saw bees more busy on white clover than they were on that field of red clover. My opinion is, that if all the honey secreted by red clover could be gathered it would yield more honey per acre than any other flower that grows in this part of the country; for I have for years been in the habit of examining heads of red clover, and seldom failed to find nectar that could be seen and tasted. I have also often examined the heads of white clover, and tried to discover honey, but have never found enough so that it could be seen or tasted; and if I did not know that it does produce honey, I should say that it contained very little. Now, let the old heads say what they will; but if red clover were as plentiful as white clover is here, and I had bees that could reach all of it, I could show some big crops of honey. But there never was, is not, and, I think, there never will be, a honey-bee that can get all of the nectar secreted by red clover.

Bluffton, Mo., Aug. 24, 1889.

S. E. MILLER.

BEES POISONED BY A PIE-MAKER, BECAUSE OF THEIR ALLEGED NUISANCE.

I take the liberty to ask you for your opinion in a matter in which I know you are interested. A gentleman from Baltimore, director of a pie company, called on me the other day and asked me the best method of getting rid of bees which had so invaded his factory, on the outskirts of the town, as to cause him great annoyance, pecuniary and otherwise. He stated that his company had been turning out 20,000 pies a day. He employed some 20 hands, besides 10 wagons and drivers; but in consequence of the bees, which crawled all over the pies, died in them, and made them unsalable, his business had considerably decreased, and he was now making only 3,000 pies daily. He stated that the nearest apiary to him was 10 miles away; that he had driven round for three or four miles, making inquiries, but had discovered no bees. I asked him if he was in the neighborhood of woods and hollow trees. He said there were several round him. The bees were black. I concluded they were wild bees, and I reluctantly advised him to use poison, supposing that he was not injuring anybody's trade, which he was particularly desirous to avoid. Nevertheless I ask-

ed him, before resorting to such an extreme measure, to be so good as to wait until I had consulted good authority as to the best steps to take; and as it is much to the interest of the bee-keeper to protect a business that is evidently suffering, I should feel much obliged to you if you would kindly suggest a remedy.

FREDERICK L. CURTLER.

Alexandria, Va., Aug. 8, 1889.

The pie-maker is greatly mistaken. Bees could not possibly go ten miles to bother him, and I very much doubt if they go one mile. His complaint, as you give it, would seem to indicate that his trade has gone down from some other cause, and he is seeking to saddle it upon bee-keepers. The number of bees he poisons can not do any harm, I think, even though there is an apiary within one mile of him. I should tell him to poison them if he chooses. Very likely the nuisance has all abated before this reaches him. When bees in large numbers are kept, say, within $\frac{1}{4}$ mile or nearer, they sometimes prove annoying during a drouth, or when there is no honey to be had, but such things are an exception and not the rule. If you could visit his establishment I am quite certain you would find he is greatly exaggerating the matter in regard to the bees doing him harm financially.

BUCKWHEAT HONEY; WINTER PACKING; UPWARD VENTILATION.

1. Do you consider it advisable to make your bees winter on buckwheat honey, if you have plenty of it?

2. What material is best for packing a double-walled hive above and at sides?

3. Is upward ventilation desirable for outdoor wintering?

C. H. HOYT.

Irving, Mich., Aug. 5, 1889.

1. Buckwheat honey, if well ripened, is as good as any honey for wintering. White honey is preferred, as a general thing; but so far as we are able to discover from reports, bees winter about as well on one as on the other.

2. Wheat chaff is about as good as any thing for packing around hives. It is light and porous, and in most localities it is the best and cheapest. Almost any porous material such as chaff of any kind, or sawdust, will answer tolerably well.

3. Upward ventilation, aside from what is obtained through the chaff cushion, in outdoor wintering, is not necessary. Give them a good full-width entrance and they will have all the ventilation they need. Upward ventilation, both for outdoor and cellar wintering, is now generally abandoned. Plenty of bottom ventilation seems to be all that is required.

TO BIND GLEANINGS.

Take a strip of heavy manilla paper, pasteboard, or light tin, 1 inch wide and $10\frac{1}{4}$ inches long, for a pattern; make a line $\frac{1}{4}$ inch from one edge. Start the first hole on the line with an awl or punch, $1\frac{1}{4}$ inches from one end (mark that "top end"), and make the rest of the holes $1\frac{1}{4}$ inches apart (6 in all). Lay this pattern on a copy of GLEANINGS, the edge closest to the line parallel with the back edge of the book. Mark through the holes of the pattern with a pencil or awl, then take six copies and prick through as marked, with an awl, and sew together

with a running stitch. Six copies are nice for reading or reference. When the year is up, cut the stitches and sew 24 together. A cover made to suit your fancy may be sewed on at the same time. The above-described pattern is to make all the holes for stitching alike. No matter how many packages you make, it forms a square book, provided you punch the holes through every six copies straight.

W. Lewisburg, O., Aug. 19, 1889.

F. WEHE.

In my travels I saw GLEANINGS many times, put up in home binders. At Thomas Arundel's, in California, whole volumes were so neatly arranged with ornamented backs, that I could hardly believe they were home-made.

QUEENS FERTILIZED ABOVE THE ZINC NOT A SUCCESS; A CORRECTION.

In GLEANINGS, page 685, in your comments on Heddon's paragraph, you evidently made a mistake in saying that he had "succeeded in having a queen reared and fertilized above the perforated metal." In the paragraph quoted, the queen was reared, hatched, and fertilized below. You will notice that the statement in nowise differs from the views I have expressed on the subject. I have had the same experience over and over; but in numerous trials I never had a queen fertilized above the excluder without a coincident loss of the old queen below. It can occur only when the queen in the brood chamber is about to be superseded. You will see, therefore, that the idea you have conveyed may lead some one to try that very thing and fail also. There is no fact better established, than that a queen can not be "reared and fertilized above the perforated metal" while a good laying queen is below in the brood-chamber. It may be possible in a good honey-flow, but we have had no honey-flow in this locality good enough for it to be possible, in the past four seasons that I have tried it.

G. L. TINKER.

New Philadelphia, O., Sept. 2, 1889.

Thanks, friend T. We accept the correction; but it is true that Heddon, as early as 1885, or perhaps earlier, had cells reared and hatched above the excluder. But some one, it seems, has anticipated Heddon on this point. See a short article from A. A. Fradenburg, pages 742, 754, Sept. 15.

IN FAVOR OF CARNIOLANS.

During the present season I have been testing several different races of bees in the same yard, and find that the Carniolans are away ahead, and will give me quite a nice crop of surplus. This is my second season with them, and thus far I am very much pleased. I find them peaceable, industrious, and very prolific, gather but little propolis, and, so far as my experience goes, they winter better than the Italians. I have had considerable experience with bees, having kept them from my boyhood up to the present time. I had at one time 118 colonies, mostly Italians, and their crosses. I have also tried several races, with more or less satisfaction.

T. I. DUGDALE.

West Galway, N. Y., Sept. 3, 1889.

THE SENSITIVE PLANT THAT BEARS HONEY.

I send to-day some seeds and specimens of leaves and flowers of *Mimosa pudica*, or sensitive plant; very rough seed-pod, flowers globular, about $\frac{1}{2}$ inch in diameter, very sweet flavor, probably a pollen-plant. Bees love to climb all over it and wal-

low all round it. It is of a fine red color, leaves delicate and very sensitive. It will close at the least touch, especially in a warm dry day. I also send an allied species of mimosa flowers, loose, and sheaf-of-wheat shaped, quite sweet-scented (less so than the pudica), less pollen; seed smaller; pods long, smooth; very slightly sensitive; blooming a few weeks later; plants more numerous. Both begin to bloom in May, and are now covered with the terminal seed-pods. I found a few fresh blossoms this morning. I shall try to send you a *root* of the pudica. I think it will live and reach you. Numbers three, one, and three, two, are what are here called white and yellow primroses. My attention was attracted to them by their abundance and beautiful bloom, and especially by always [in June (and before and after)] seeing the bees getting (perhaps honey) surely pollen from them. I saw and heard the bees more and oftener on this yellow flower, never once on the horsemint. Perhaps I was not early enough in the morning for them. No. 4 is a sprig of a rather tall (say 2 or 3 feet) perennial shrub, mimosa. It blooms very abundant, covering the stem and the very end with its light-red globular sweet-scented blossoms. Its fruit is a small flat pea-pod. It blooms in April and May. I happened to find this sprig this week.

I first noticed, April and May, 1879, that the mountains were covered with this mimosa, and gave a sweet scent, far and wide.

No. 5 contains a few blossoms of a plant that the bees climb and roll over, and wallow through its pollen. I do not know its name, and have no botanical dictionary here. These flowers, though, one and two, are acid, much like the wild strawberry (not the edible fruit, but a weed whose name I can not now recall) in their numbers and rank in plant life, and are perhaps too small and unimportant to be of much use to the bees. But I write and send you the mimosa pudica, or sensitive plant, and just add the rest.

EDWIN LEIGH.

Center Point, Tex., Aug. 3, 1889.

I should suppose that, when the bees touched the flower, if it is like the sensitive plants we have around here in our green-houses, it would double up and lie down, unless, forsooth, it learns to distinguish between the human touch and the bump of a busy bee. Thanks for the plants and seeds. We will try to test them.

THE CLOVER BLOAT AND THE WOODEN BIT A SURE CURE.

I assure you that the round-stick cure for hoven will save the cow every time. It is so simple that people can scarcely believe it; and yet a piece of broom-handle for a bit, and two wool-twine strings to hold it in the mouth, will drive any man with a nose out of the yard where the cow is. You would not hold the stick long, I assure you. There is no need of putting a knife into a cow's side. Open the mouth, and the pent-up gas will escape.

Perrysburg, Ohio, Sept. 3, 1889. G. A. ADAMS.

HOW TO CURE CLOVER-BLOAT WITH A CORNCOB.

The remedy for clover-bloat was published some years ago, I think in New York *Tribune*. Happening some time after that in Berlin I stayed with a farmer who came one afternoon in great excitement to me to know if I knew anything about bloat, he having 3 cows lying beside the fence, on their sides. Trocar, no one knew anything about, nor

any other remedy; so I took a good corncob, put one in each cow's mouth, crosswise. Then I got a stick, as described in your article. By rubbing the sides of the animal with a rough round stick it did not take very long, when they were on their legs again, and got over their trouble. F. J. M. OTTO.

Sandusky, O., Aug. 26, 1889.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 145.—*Has your experience with commission men been satisfactory? If not, state in brief some transactions, not mentioning names—transactions that will serve as a warning to some of the novices.*

I have patronized home markets only.

A. J. COOK.

It has not. "The other fellow" may give the experience.

MRS. L. HARRISON.

Yes, where such men have a good rating with Bradstreet or Dun.

G. M. DOOLITTLE.

My experience with commission men in selling honey has been entirely satisfactory to me.

GEO. GRIMM.

Yes, reasonably so; but my honey dealings with commission men have never been very extensive.

O. O. POPPLETON.

I have been swindled by only one; but since, I am careful to inquire of the responsibility of the parties before shipping, and have had no trouble since.

P. L. VIALLO.

Yes, and no. Perhaps "yes" would be as appropriate an answer as I can make, taking all in all, without going into details. As a rule, commission men are human beings. I find there is a difference in men.

A. E. MANUM.

Yes, but they have never handled any honey for me, except to buy it and pay for it like other people. They have sold produce of the farm, and large quantities of preserved eggs, to better advantage for me than I could. Deal with honest ones only, or sell for cash.

DR. A. B. MASON.

I have been well used by commission men. This, however, does not change my preference for selling outright for cash. I know there are some very honorable men in the commission business, and I judge there are others just the opposite, as in other kinds of business.

P. H. ELWOOD.

My experience with commission men in selling my honey has been very limited. I have always thought best to do my own selling. I do not wish to sit in judgment upon commission men as a class. I take it they are like the average of mankind, good, bad, and indifferent. If I were to sell my honey on commission I would try to send it to a good man.

H. R. BOARDMAN.

While my experience has been satisfactory, I wish to find fault in one particular. The best quality of $\times \times \times$ honey will not sell at the highest quotations. It seems that commission men have a *habit* quotation to induce bee-keepers to ship their honey to them, and then sell one or two cents low.

er. I think they should say what quality and what package brings the best price. I speak particularly of extracted honey.

RAMBLER.

Yes, we had trouble in the beginning, because we shipped to everybody's man, and too largely. We have special commission men, and ship to them only what they think they can readily sell at our figures. The great trouble with commission men is, that they get overstocked before they know it.

DADANT & SON.

We have had some deal with commission men, and so far we have no reason to complain. We sent four barrels of honey to a firm in Milwaukee. I told them to take all the time they wanted to sell, and do the best they could to get a good price. They held it about four months, then sold at good figures, and paid promptly. We sell most of our blackberries through commission men, and so far I have had no trouble or reason to find fault with them.

E. FRANCE.

We learn to know men best when doing business with them. There are very respectable commission merchants, and there are scoundrels among them, the same as there are among any other class, of men. Bee-keepers as a class, are, in my estimation, if not superior at least on a level with any other class I know; yet there are scoundrels among them. Don't let us run down a respectable calling, because there are black sheep among all flocks. Don't let bee-keepers be guided by flattering offers, but let them endeavor to deal with honorable men.

C. F. MUTH.

More satisfactory than otherwise. One firm ordered a little on trial. It sold at a great big price. With the returns the statement was made that they could sell large quantities of it at the same figure; but when the larger lot arrived they could hardly sell at all, even at a low figure, although quotations were about the same all the way through. Reports of light weight were made in some cases, where I knew it must be a mistake. When I have named a price below which they must not sell, and asked them, on receipt of the goods, to acknowledge the goods and name the price set, they have uniformly refused to name the limit of price, so they can sell as they please; and I heard one of them laugh at the idea of the owner setting the price, as if the merchant did not know best what it ought to bring.

R. WILKIN.

a. No; b. Commission men are the same as other folks—good, honest, and otherwise. I have found it more satisfactory to ship to one making a specialty of honey than to one handling every kind of produce, as they better know what it should sell for. In one instance the past season I sent a small lot to a party for trial. They were not regular dealers in honey. They sold a part for four cents per lb., which, of course, was not satisfactory. A few years ago I sent a large consignment to a man in New York, doing a large mixed business. After waiting six months I was obliged to have him turn it over to a regular honey-dealer, who disposed of it in a few days.

S. I. FREEBORN.

In some cases my transactions with commission men have been unfavorable; but as a whole, quite satisfactory. I believe it might be better if there were some arrangement whereby the consignor could know if he wished whether the commission man made honest returns. I knew of one man who

reported always the name of the person or persons to whom sales were made; but it may be this could not be made to work satisfactorily. Some commission men make a practice of erasing all marks that show by whom the honey is produced, and seem to fear having the producer and the retailer known to each other. I think it might be better for commission men and all if no attempt at secrecy were made.

C. C. MILLER.

As a whole, it has. Three years ago I shipped honey to fifteen different commission firms in almost as many different cities. In comparing the returns, I decided that all had dealt fairly and honestly with me. While commission men have sometimes sold my honey too low, as I thought, I have no reason to suspect dishonesty in any of my dealings with them. I was always careful, though, never to ship honey to a firm that I did not know to be in good standing. We would not trust every stranger who came along and wanted to buy of us on credit, and we should exercise the same care in sending honey or other produce, to be sold on commission. The past two years I have bought considerable honey of commission men, and this dealing on both sides has but the more firmly convinced me of the foregoing.

J. A. GREEN.

I have had some most satisfactory deals with commission men. I know that they are not all rogues. I know that many times they find it impossible to dispose of our goods at the price we hold them to, and oftentimes at any price. There are a good many terribly weak-minded men in the bee-business. Some of them think *their* goods are the most salable in the world, which is not the case by any means. Commission men are good for the country. They fill an avenue in the commercial world which no other class of business men can. We should not expect human nature to work as well for others as it works for itself. It is not best it should. If all men were as willing to serve other people as to serve themselves, the wealth of the world would pile up into fewer hands much faster than it does. The inspiration of ownership is a grand element in human nature. He will sell goods quickest who owns the goods. The ownership of happy homes is a grand thing. Every man should own his home; then we shall have a country of patriots.

JAMES HEDDON.

My experience with commission men has been entirely satisfactory. They have let me entirely alone, and I have let them entirely alone. My largest shipment of honey came out thus: A family in Columbus heard of my honey and wanted some. A lady friend, who was a customer of mine, having put the bee in their ear, I earnestly advised that they buy in the Columbus market—as, if they paid a little more, it would be more than balanced by freedom from risk and worry. My advice was without avail. Our mutual lady friend devised the plan of having a well soldered tin trunk made, and filled with sections. Then, you see, if the honey was broken somewhat it would be in there any way. Well, in the course of time the trunk arrived. It had been opened on the route. Some of the sections were gone altogether, and the rest, in its broken condition, was not an attractive sight, I judge. While honey in glassed cases may be broken in transportation, I suppose that, when packed so as to be out of sight, it is pretty sure to be.

E. E. HASTY.

I am glad to see that our friends as a rule show a charitable disposition toward commission men, whether they patronize them or not. It is surely wrong to condemn a whole class of individuals because their line of business is such that bad men may easily take advantage. For instance, it is quite customary to denounce jewelers as a class of cheats; but it is very foolish, notwithstanding; for we have conscientious, fair, and honorable men—a good many of them—in the jewelry business; and those who build up a large business are almost invariably of this class. Friend Doolittle suggests Bradstreet and Dun. I think there is an excellent point there, in more respects than one. The commission man who is rated as a man of means, and one prompt in his payments, would never have built up such a business had he not been straightforward and honorable. C. C. Miller makes a suggestion which I think is valuable. If you can find a commission man who is willing not only to tell what the goods sold for, but give you the address of the purchaser, he is certainly the one to be recommended. And I should say not only in the commission business, but in every other business in the wide world, the man who has no secrets, and nothing to be kept back from his patrons, is the one to deal with. It is like tearing away the fences around our dooryards. It gives us glimpses of a better time coming; and I think almost every neighborhood is beginning to agree that no fence at all gives better results than stone walls eight or ten feet high, with sharp spikes on top of them.

ANSWERS TO QUESTIONS

FROM OUR A B C CLASS.

This department is designed primarily to cover questions either not already answered in the A B C of Bee Culture (price in cloth \$1.25), or, if incorporated in this work, are here dwelt upon more in detail on account of the importance of the question. While these answers are of vital interest to the A B C scholars, they will doubtless be found, in many instances, to be of considerable value to the more advanced student. For lack of space, the question itself, instead of being directly stated, is omitted, the same being implied in the answer. It is hoped that the class will first consult their text-book before sending in their questions.

THE SPRAY-DIFFUSER.

D. L. C., Michigan.—The spray-diffuser is a little small, but with it you can in two minutes spray a whole colony, if it works clear. We discarded the spray-diffuser altogether in treating foul brood. Don't waste your time in trying any other plan than the starvation method. You can cure it after a fashion with phenol or carbolic acid; but it is long and uncertain in its results. We have so advised in GLEANINGS.

J. A. W., Iowa.—Bees do not gather glucose unless the same is put within their reach by man. But this would not pay, even at the low price of the article. Glucose can be mixed by man, with extracted honey, but would not pay, and is, we venture to say, rarely if ever practiced. Tell that commission man that all the commercial glucose that bees gather from flowers, is in his imagination. Tell him also that the honey you sent him is pure, and was sent just as it was taken from the flowers.

WHEN TO PUT IN DIVISION-BOARDS.

W. H. M., Pennsylvania.—The time to take out the brood-frames from the brood nest, and put in division-boards, should depend upon circumstances. If the colony is strong, you might not need to take out any frames at all. The general rule is to give bees on only as many frames as they will cover comfortably, and fill up the empty space with division-boards or chaff. Brood-nests for winter should be contracted about the middle of fall—earlier or later according to circumstances.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

BEES BITING THROUGH THE TOUCH-ME-NOT.

The honey-flow still continues. My bees have made a great deal from the large thistle, and are now working on touch-me-not and fireweed. The Italians bite through the tongue of the blossoms, as described in the A B C. S. J. YOUNGMAN.

Lakeview, Mich., Aug. 31, 1889.

POLLEN FROM MILKWEED.

I submit some bees for your inspection. Will you undertake to tell me what that is on their feet, and where or what do they get it from?

Central City, Neb., Aug. 11.

W. H. CAGIL.

[Your bees have on their legs the pollen of milkweed. See the subject of "Pollen," in the A B C book.]

"FATTENING UP" QUEENS.

The queens came to hand all right. They seem to be a very diminutive kind of bee, but perhaps after they get over their trip and fatten up they will be all right.

G. W. LECHLER.

Newhall, Cal., Sept. 1, 1889.

[Look here, friend L. I guess you would need fattening up a little if you had to go through the mail-bags all the way from here to California. The trip would surely make you a little thinner than when I last saw you; but I do not know who would not fatten up if they had such a pretty ranch as yours to keep bees in.]

CLOSED-END FRAMES, SPREAD $1\frac{1}{2}$ INSTEAD OF $1\frac{1}{4}$ INCHES.

I have been reading an article from the pen of H. L. Jeffrey, with a great deal of interest. He writes very positively on the width of the brood-frame, which, he claims, should be $1\frac{1}{4}$ inches in width. I have used this width of end since 1886, and like it the best of any width that I have used.

Danbury, Ct., Sept. 1, 1889.

H. H. KNAPP.

WHAT IS IT WORTH TO EXTRACT A MAN'S HONEY? HONEY-KNIFE HANDLE LOOSE; HOW TO FASTEN.

What would it be worth to extract a man's honey from about 20 hives, using my extractor and all my tools, and with his help? How can I fasten the handle to my Novice honey-knife? It came off while cutting some wax from the top of some frames.

Akron, O., Aug. 12.

CHAS. W. FRANK.

[It would be impossible to answer your question directly. The best way is to hire a man at so much an hour. A man at \$1.50 ought to be able to extract the honey in half a day, provided he has had some experience with bees. A better way, however, would be to use the extractor yourself.—If the handle to your honey-knife is loose, heat the blade shank, dip it into sulphur, and then drive it home into the handle.]

REPORTS DISCOURAGING.

THE HONEY CROP A FAILURE IN CALIFORNIA.

The honey crop on the Pacific coast is very light this year in this locality. Bees are doing very well, working mostly on alfalfa and sunflower. I have about 200 stands, some of which have done almost nothing, while others have done well. One colony has put up 203 pounds of comb honey for the season, up to date.

J. G. GILSTRAP.

Lemoore, Cal., Sept. 3, 1889.

SEASON POOR.

The season here has been a very poor one for honey—very wet and cool weather during June and July. We are now having quite a yield from buckwheat, and may get our unfinished sections filled with that and goldenrod. Queens in nuclei stopped laying for about ten days the early part of August, but are now laying finely again. I never sold (retailed) so much honey before in August. Cause, high sugar and scarcity of small fruits.

Albion, N. Y., Aug. 26, 1889.

G. H. ASHBY.

You make a good point in your concluding sentence. The high price of sugar is doing very much to give the bee-keepers a better price for their products. Truly, it is an ill wind that blows nobody good.

A REPORT FROM ARIZONA.

Up to present time the present season has been a rather poor one for honey. Bees are generally at work in February; but this season, on account of cool nights our bees did but very little until the middle of June; and owing to the water for irrigation failing, it soon became very dry. Our bees have done but very little since July 15. We have taken only 420 gallons from 85 colonies; but as the season is very long here, and we sometimes extract as late as the latter part of November, we can not tell how things will be by that time. We sell our honey at home for \$1.00 per gallon, or \$4.00 for a five-gallon can.

ANNIE M. SKINNER.

Mesa City, Maricopa Co., A. T., Aug. 22, 1889.

Why, it seems to me, my good friend, that if your honey is nice you have got the price very low; if it is as thick as we usually offer it, it would be only 8 cts. a pound at retail. So the amount of honey in your arid region does depend largely upon irrigation.

A DISCOURAGED SISTER.

Two years ago last spring I bought a hive of bees, and thought it would be just fun to watch them "work for nothing and board themselves." I sent away for supplies and literature, and studied bee culture all of that summer. They did very well, and in the fall I had three hives, with plenty of honey for them all winter. I put them into winter quarters in the most approved manner, as I supposed, but in the spring they were all dead, with plenty of honey in each hive. I was so discouraged at the loss of my pets that I have not tried again.

MRS. H. A. D. WESTOVER.

David City, Neb., Aug. 24, 1889.

Why, my good friend, you have no reason at all to be discouraged. Was not the honey you had left worth nearly what the experiment cost you—especially if you in your figures estimate the "fun" for what it was worth? Very likely, in Nebraska you will need to winter in the cellar. Get some

more bees, and fill your empty hives, and you can surely master the matter of wintering, by the help of the ample directions given by our able writers.

REPORTS ENCOURAGING.

Bees are going for the buckwheat, with a grand rush. It has started the swarming fever.

Tidal, Pa., Aug. 23, 1889.

S. HEATH.

My honey crop is about 22,000 lbs. comb, and 3000 lbs. extracted, from 185 colonies, spring count; increased to 275.

C. THEILMANN.

Theilmanton, Minn., Sept. 16, 1889.

FROM 3 TO 13, AND 150 LBS. OF HONEY.

I commenced the season with 3 hives of bees. I transferred and increased to 13 colonies. The bee-keepers in this section of the country will remember this one for the large rainstorms we have had. I shall have about 150 pounds of surplus honey, leaving my bees with good supply to winter on.

Arden, N. Y., Sept. 18, 1889.

J. G. EARL.

BEEES DOING SPLENDID.

Bees are doing splendid in this part of Canada. They are working on buckwheat. As I saw that they were very busy to-day I started toward the hives to see what they were working on, and I did not have to open the hive, for I could smell it at quite a distance. There is quite a number who have a few colonies, and I let these have GLEANINGS to read, and they get a good lot of information out of it, so I think next year they will take it for themselves.

THOS. J. SMITH.

Aylmer, Ont., Can., Aug. 14, 1889.

BEEES HAVE DONE WELL.

Bees in this immediate vicinity have done quite well, notwithstanding the wet season; but it may be owing to there not being any large apiaries. I understand they have not done as well in Addison Co., where the large apiaries are. I have ripened some of the *Ignotum* tomatoes from the seeds you gave me, and they are smooth and nice—not quite so early, seemingly, as the Mikado, but a better habit of growth—not so sprawling.

A. A. LEWIS.

Waterbury, Vt., Aug. 19, 1889.

FROM 60 TO 130, AND 4000 LBS. OF HONEY.

I commenced the season with 60 colonies, mostly in good condition. I lost only two through the winter. I divided about half by artificial swarming, while they were working on dandelion, which did not furnish as much honey as in some years. Clover was a little late in coming on. I do not think my apiary would have averaged 5 lbs. of honey per colony when the clover commenced yielding honey. I had to feed some colonies to prevent starvation; but when they did commence gathering honey it came in with a rush. The combs being empty, the queen filled every thing with brood, which caused an abundance of swarming. I never had such a time with swarming. I was not expecting it, and not prepared, so I had to do the best I could. Every thing swarmed until I increased to 130, and had some 20 that left for parts unknown. I have taken from several new swarms, after filling the hive, 75 sections of comb honey up to date. I have taken, altogether, 4000 lbs.—1000 comb, and 3000 extracted.

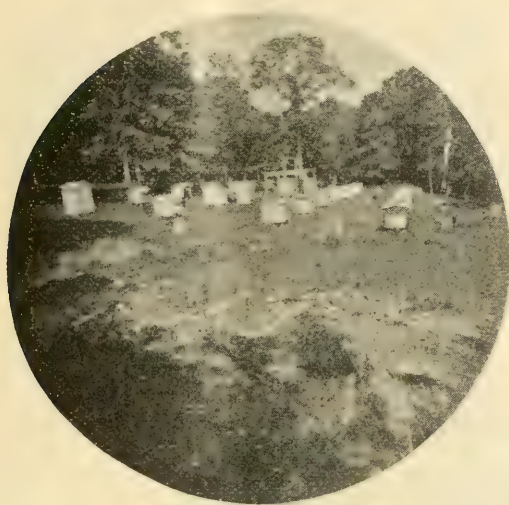
New Sharon, Ia., Sept. 3, 1889.

GEO. BRIGGS.

NOTES OF TRAVEL.

THE SHOT-TOWER HIVES, ETC.

As we could not get our engravings ready in time to go with my notes of the different apiaries, we shall have to go back a little. Below is a picture of one of friend France's apiaries.



A GLIMPSE OF ONE OF E. FRANCE'S OUT-APIARIES.

You will notice that the Kodak has a kind of way of tipping objects out of shape unless they are right in the center of the focus; therefore the shot-tower hive in the above, on the left hand, seems to be leaning dangerously. In the center of the picture, underneath a beautiful tree, you will notice the framework of one of the extracting tents. The frame is left permanently in each apiary, while the cloth is unhooked and folded up and carried from one apiary to another. A light door is also moved along with the cloth. With plenty of help it is but a few minutes' work putting up the tent and getting ready for extracting. The hives in the picture are all or nearly all of the "shot-tower" "persuasion," therefore each hive should count four. At first glimpse you would say that friend France's out-apiaries are small affairs—may be only fifteen or twenty hives being visible; but when you discover that each hive contains four rousing colonies, it is not such a small affair after all. Several questions have been asked in regard to these shot-tower hives—the size of the frame, etc. The frame friend France prefers is shown on page 776 of this issue. The dimensions are something like 12x21, if I make no mistake. Of course, there is to be a cross-bar in the middle, to separate so large a comb. Now, when these

large frames are used two stories high, and in a tenement hive containing four colonies each, no wonder the boys call it a "shot-tower." Three such hives make a pretty good load for a two-horse wagon; but they really comprise twelve hives. The cut at the bottom shows one of the hives taken separately.

One of the first questions to be asked is, "How do you get at the frames of such a tall hive?" Well, friend France is not only an advocate of a tenement hive, but he advocates side-opening hives; therefore every one of the four sides of this tall hive swings open, so you can remove the combs from the lower story if you choose, without disturbing the combs in the upper one at all. A good many years ago it occurred to me that a side-opening hive could be made strong and substantial by having two or more hives built together. In the same way we can have a side-opening hive in a house-apiary; that is, a hive may be made in this way strong and substantial, and yet permit one entire side to be taken out in order to remove the frames from the side instead of lifting them over the top. Furthermore, friend France is a firm believer in chaff packing. Bottom, top, and sides, and every part of the hive where it is exposed to the weather, is protected by substantial chaff packing, chaff division-boards, or chaff cushions, whichever you have a mind to call it, or perhaps

a combination of all three together. I do not wonder that such hives winter bees, even in Wisconsin, without any loss at all; for four strong colonies, placed together so as to form collectively pretty nearly a cube of bees, with such protection as they have all around them, are ever so much better protected than we can very well fix a single



FRANCE'S SHOT-TOWER HIVE.

isolated colony. Friend France is so much opposed to dampness that his hives are all upon stakes. The northwest wind can sweep right through under every hive; but it has got to get up through good chaff packing, and, if I remember correctly, tarred paper besides, before it can chill the toes of even the lowermost layer of bees in these big structures. I think the top is hinged, so it turns over and rests on a stake, but I may be mistaken. Now, if you still have more questions to ask, we will submit them to friend France himself; and if I have made any mistakes he can set me right.

Let us now skip over the hills to the beautiful town of Orion, on the banks of the Wisconsin River. The town is not very much, it is true; but its location haunts my memory still as one of the prettiest spots on the face of old Mother Earth. I can give you only one brief glimpse, taken from friend Snyder's pretty home. He has cop-

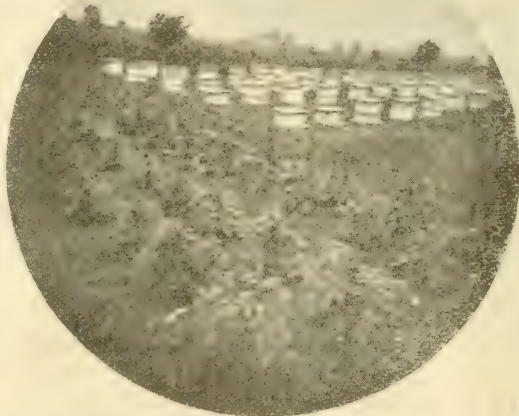
ied your old friend so far that there is a stairway at the back side of his honey-house, and a little platform up near the roof, where the children climb around and play. It was up on this platform where we stood that foggy morning, hoping the sky would just lighten up a little bit. Well, it did enough so we decided to try it, and the Kodak was snapped several times toward the hives, Ignatum tomatoes, and the grapevines. The cut shows the result. You can see the tomatoes pretty well; also the grapevines. The

ground was soft, mellow, and clean. I fairly ached to get a sharp-toothed steel rake and rake over the surface; but it did not really need it, for he and his children had fixed it nicely. I hardly think they expected Uncle Amos to come around, for I had just written him that I could not well make him a call. And then those bee-hives! Friend Snyder is a carpenter, and so the hives were made just right, and, as a matter of course, each hive was so like its neighbor that nobody could tell one from the other. Now, to make hives unlike by architecture and carpenter work is expensive; so friend S. decided to paint them unlike, firmly believing that bees distinguish colors just as we do. He has remarkable taste in making these decorations tasty, and at the same time having them unlike. With the dim light we had, the Kodak could hardly catch it; but if you look sharp I think you will see the scallops, festoons, brackets, etc., all

done with the paint-brush. Perhaps his good wife helped him before she left her little home for that home beyond; for some of the embellishments are strikingly in a line with feminine taste and feminine work. May God's blessing rest over that motherless home; and may the father, and children too, always find enjoyment and satisfaction in working together inside of the fence that incloses their own dooryard.

We will now stop at the Agricultural College, on our way home from Manistee. Katie is playing on the pretty lawn in front of Prof. Cook's house. She remembers Uncle Amos, and tells me that her papa is probably in his office, over across the grounds. Although I have been there a good many times, there are so many buildings, and so many offices, that I can't just now decide which is Prof. Cook's. She tells us it is in the building occupied by the museum. Oh, yes! where the bugs, butterflies, etc., are

pinned fast in glass cases. When I got there, one of the students said friend Cook had just started off across the fields; and on looking out of the window we caught a glimpse of a couple of people away in the distance, going rapidly from us. Now, although a cousin of mine, who lives in Lansing, and Blue Eyes, were in the buggy waiting for me to come down, I started across the lots after Prof. Cook. I did call to them to go over to the greenhouses and gardens, and see the nice things, if I did not get back as soon as



A GLIMPSE OF FRIEND SNYDER'S APIARY, ON THE BANKS OF THE WISCONSIN.

they expected. Where do you think I found friend Cook? Why, he was right in the middle of a field of several acres of Rocky Mountain bee-plant. He was out with one of his students who had charge of this department. They were so much interested in the sights that old Dame Nature had to show that I was right close behind them before they saw me approaching. Of course, there were a dozen things to look at and talk about all at once. The Rocky Mountain bee-plant had not made a good stand. It had come up just about as I told Prof. Cook it would when he told us of his project at the convention in Columbus, about a year ago. We have always had trouble in getting the Rocky Mountain bee-plant and the spider-plant to germinate. The only way of getting a good stand for a whole field is to raise the plants and then set them out as you would tomatoes. In this way we can have the ground covered with bloom, every

foot of it. But it is pretty expensive work for honey alone. One of the students was with Prof. Cook; and while we were talking he called our attention to a plant that

who had charge of the apiary, informed us that the honey was coming in at a pretty fair rate, supposed to be from the Chapman honey-plant. As, however, the bees had only just ceased working on basswood, and at the same time were pretty busy on the scattering plants of the Rocky Mountain plant, it was hard to decide positively where the honey came from. Prof. Cook will doubtless himself tell us whether he would advise planting and cultivating either of the plants for honey alone.

When we got back to the wagon, where the women were, of course I got a scolding. Friend Cook pleasantly suggested, however, that they need not have been troubled, especially while there were so many things to be seen. They replied that they had seen all they wanted to, while no one they knew was around to show them, or answer their questions.

"Did you see our beautiful collection of butterflies and moths?" said friend Cook.

"Yes," replied they, "we have seen them all."

By a little inquiry he decided that they had not seen the butterflies; and he signified to me that he had a rare treat in store for all of us.

Of course, we went around to the house, and met Mrs. Cook, and Bertie and Katie, and finally we went for the butterflies. I had seen butterflies at the Agricultural College before, and did not expect to see any thing particularly wonderful, only I noticed, by the twinkle in my friend's eye, that there must be something of unusual



GLIMPSE OF A FIELD OF CHAPMAN HONEY-PLANT ON THE COLLEGE GROUNDS AT LANSING.

bore pure white blossoms, instead of pink, like the rest. Friend Cook put his hand on the student's shoulder, and commended him for his habits of observation. It was probably a sport; but if anybody should want a white Rocky Mountain bee-plant, it can readily be furnished. Mr. Samuel Wilson, of Mechanicsburg, Pa., who has advertised the seed of the Rocky Mountain bee-plant so extravagantly, had better come and see how it has succeeded on the grounds of the Michigan Agricultural College. Booming new things away beyond their merits is beginning to bear its fruit; and the seedsman who continues to do it will suffer, sooner or later, in the estimation of the public. I told friend Cook the women were probably anxiously waiting for me where I left them; but there were so many things to talk about on our way back, especially since I told him that I must leave by the morning train, that it took me a good while. The Chapman honey-plant has done much better. It was, however, cultivated like garden crops, for the first season, and now it is a thing of beauty. By the aid of the Kodak I am enabled to give you the view above, which was taken from a little distance, so as to get a glimpse of the whole field, plainly showing the rows. The adjoining view gives another glimpse, where the Kodak was held within a few feet of one of the plants.

The two views above give a very fair idea of the looks of the field. The bees from the apiary, only a few rods away, were very busy on the plants. Prof. Cook's nephew,



THE CHAPMAN HONEY-PLANT, OR GLOBE THISTLE, NEARER BY.

interest. We went into a room adjoining the museum, and stopped before a case of shallow drawers that reached from the floor to the ceiling. As friend Cook selected

special drawers, and exhibited them to our gaze, we raised our hands and opened our mouths. We soon discovered, however, that the gorgeous changes he had in store for us were almost as varied as the forms of the kaleidoscope; and when we had almost exhausted our expressions of wonder and admiration, he informed us that we had not seen the *butterflies* at all. What we had been looking at were simply *moths*. I guessed that these must have come from some other country—possibly from the tropics. He assented, but exhibited some, almost as pretty, that came from our own climate. Many of these, he said, were nocturnal moths, or those that fly only in the nighttime, and which had been found under the electric lights.

I am informed that sometimes as many as a peck measure full of moths may be scraped up on the ground under these lights. Of course, it affords a wonderful opportunity for making collections of the night-fliers. It has been suggested that this may be the means of diminishing the codlin moth and the cabbage butterfly; but, if I am correct, these are not night-fliers; and those who have burned lamps, set in tubs of water, to catch moths, succeeded in capturing only those which are not injurious to our crops. Will Prof. Cook tell me if I am correct? Some of the most gorgeously painted insects were from the tropical climates. The collections now of moths and butterflies embrace specimens from almost every part of the earth. In a very little time we began to find our stock of exclamations running short, when Prof. Cook, in one of his happiest veins, said, "Now, look here, friends. I am not near through yet;" and he pointed to an appalling array of drawers yet to be opened. "Please save some of your very best expressions of wonder until we get over to that next case."

We soon found his words were true; and then he explained briefly the way in which the moths were classified. Certain peculiar colors, or shape of the wings, enables the entomologist to place them in families. For instance, there were several drawers of swallow-tailed butterflies; and we recognized a few of them as seen around our own homes. The wonderful facts connected with these insects sound something like some of the stories in the Arabian Nights, and only proves again that truth is more wonderful than fiction, and that the machinery of the universe is more strange than any thing yet gotten up by mankind. Most wonderful of all, God has endowed us with faculties that enable us to traverse understandingly these wonderful labyrinths of science and nature. If you ever go to the Agricultural College of Michigan, ask to see the new butterflies. Very likely the collections of our other experimental stations are much like those at Lansing, but I hardly believe that any other State has as yet caught up with Michigan in this particular line. Quite a number of our bee-friends, I happen to know, are interested in such collections; and I now call to mind H. R. Boardman and E. France. If these two could get together and get acquainted, what a time in visiting they

would have! And right here, friends, lies one of the grand features of our large conventions. Before leaving the butterflies I snapped the Kodak on several cases of collections; but, probably owing to my inexperience, they were hardly worth using for print. We were both up at daylight, and I was so anxious to see their test grounds for garden vegetables that Prof. Cook took the liberty of waking up some of the students who had charge of this department. Their experimental grounds are beautiful, and in splendid order; yet, owing to their colder climate, many things were behind in season compared with ours here at the Home of the Honey-bees. For instance, there was not a tomato ripe on their grounds, while we had been selling them considerably; and in regard to bush lima beans, they had not a plant, either of Henderson's or the Kumerle. That cold spell the first of June, at the time when it killed more than half of ours, seems to have killed every one on the college grounds. All that remained were the neatly painted stakes, telling where the bush limas had been planted, and when.

MYSELF AND MY NEIGHBORS.

THE MACHINERY OF THE UNIVERSE.

The heavens declare the glory of God, and the firmament sheweth his handiwork.—PSALM 19: 1.

I PRESUME that most of you are somewhat like me, inasmuch as you like to "have things happen." At times you greatly feel the need of something to enlist your sympathies and to stir you up. When we were children we used to like excitement of some kind or other—Fourth of July, Christmas, circus day, and some of us probably enjoyed a thunder-storm—yes, even a hailstorm that broke the windows; possibly a flood, if it were not on too large a scale. The coldest day that was ever heard of furnishes matter for conversation, likewise the hottest day that even the "oldest inhabitant" has "never seen the like on't" before. Well, even now I sometimes get tired, or weary, rather, with the cares of the office. I hardly can say the *monotony* of the office; for although we may be overworn by the amount of work, as well as by overwork physically, we ought not to quarrel with our bread and butter, or, in other words, we should be content to take up the work that lies straight before us, even if we do not feel just like it. Well, these thoughts were prompted by thinking that perhaps I could help you to enjoy life, and may be to love God more, by watching more intently the machinery of the great universe. A friend of mine who lives in the city of New York told me that he greatly enjoyed seeing the workmen make progress day by day on the great Brooklyn suspension bridge. As he passed it twice every day, in going to and from his work night and morning, he had ample opportunity, especially as they were thirteen years in building it. Now, perhaps you may say, "Oh, yes! who would not have

enjoyed such a sight as that? But no such work as that is going on right in sight of where I live." My friend, do not be too sure. There is a wonderful work going on right in sight of your homes, and right before the eyes of almost every one of you. In fact, I have become, especially of late, much in the habit of employing my leisure moments in studying the machinery of the universe; and I have enjoyed it so much is what prompted me to take up the subject.

In studying the machinery of the universe, I find that I can, to a certain extent, make my work and my plans harmonize with God's work and plans. It is true, I am only a speck of this great universe—a very small cog-wheel, you may say; but for all that, I am a piece, and so are you, my friends, and there is a work for you to do.

The machinery of the universe is ever changing. You may not have noticed it, but there is something going on and something new under way every minute of your life. There are currents of wind, away up high over your head, that you know nothing about. Important changes are going on up there, even when the sky is clear during a summer day, and at the same time there are things moving in the earth away down under your feet—things that you do not suspect or dream of, and things that human beings like you and me have only recently learned to let out. I have told you how much I love springs of water, and how delighted I have been when able to bid them come forth, where I did not even dream it was possible. When I was up at Green Bay, Mr. Smith, the great gardener, showed me an artesian well right near the lake shore, where water rose in a pipe 80 or 90 feet high, and they used it for the waterworks of the city; and as they still have a surplus he has made arrangements to have this surplus for his gardens. Now, there is not any ground within miles and miles that is 80 feet higher than the level of the lake. Then where does the water come from? Nobody knows. Where most of you live, gas is found to a greater or lesser extent. Yes, gas is to-day bubbling out of the fissure in the rock where I found my latest and prettiest spring. It will not burn, though, so I suspect it is carbonic acid. But where does it come from, and what makes it keep coming? May be some of you can tell me. Our wind-mill is an object of unlagging interest to me, because it indicates at a glance the *direction* of the wind, and pretty nearly the *force* with which it blows. I often watch it before storms, to see how quick it changes about from north to south, or from east to west, just as some of us change from good to bad, from industry to idleness, or the reverse; we hope; however, more often the latter. Now, during our recent drouths it has been very interesting to me to watch the clouds. Do you know the clouds never stand still? More than that, they are constantly changing their shape, changing their size, and appearing where, but a minute before, there was no cloud at all, and again disappearing in just a few minutes. Take a book and sit outdoors. I do not think it would be wicked if you

should do this on Sunday afternoon, providing you have a good book suitable for God's holy day. Now, while you read, every now and then watch the sky and the clouds. A barometer and thermometer are almost constant companions of mine, and very pleasant companions, for they tell me what God's forces are doing. Both of them are almost constantly changing more or less. By watching these changes they will help you very materially in your work. Sometimes a knowledge of what is going to happen will save you many dollars. I have told you about this before. You know I mentioned advising the hands making fast the doors and windows to see that nothing was where it would blow down and do damage (even before we had a breath of wind), just before we had our little hurricane on the 9th of last January. In a few hours there was a great loss of property, and in some places loss of life, from the tornado.

I have always been more or less interested in well-drilling. Well-drilling is now a great industry. Not only do they get oil, gas, and water from wells, but they get salt, alum, and many other chemicals, especially from the deep artesian wells.

About two weeks ago I noticed one evening that a very bright star, or planet, rather, was pretty close to the moon. An hour later I got so sleepy reading my agricultural papers that I felt as if I could hardly hold my head up a minute longer. On looking out, however, I discovered the bright star very much nearer to the moon, indicating that it was rapidly approaching it, or, in other words, the star was "chasing" the moon. I at once decided (and I was wide awake all of a sudden too, I tell you) that I would sit up and wait for the event, remembering that, almost 40 years before, I saw a similar phenomenon. I began to think that Ernest would be delighted to see it, for he is, like myself, an enthusiastic admirer of the machinery of the universe. And just then I heard his voice in conversation, for his house is just across the street. I asked him if he had seen that star approaching the moon. He said they had been watching it for some time. Mrs. Root could not afford to sit out on the sidewalk with us to watch it, but she said that, when the crisis came—that is, when the star began to go behind the moon. I might call her. Well, I did call; but before she got out of the house the bright star had gone. In its approach it passed under the dark side of the moon, therefore all we could see was that the star became dimmer and dimmer, and finally was invisible. I calculated that, at the rate the star had been apparently chasing the moon, it would be perhaps an hour before it came out on the opposite side. Very likely many of my readers who are versed in astronomy will criticise my description; but I am talking only to common people like myself. To us it seemed as if there was a race between the star and the moon, and that the star was rapidly gaining. I went into the house and got Blue Eyes' light willow rocking-chair, the opera-glass, and my overcoat; and then I sat on the sidewalk and waited for

the star to come out on the bright side. Our proof-reader, who watched it with his telescope, says it took between 68 and 71 minutes; but so much interested was I in studying the machinery of the universe that I did not feel sleepy one particle; in fact, I enjoyed every one of those 71 minutes in looking at the beautiful bright moon through the opera-glass, and thinking it was more than a hundred times as far away as the furthestmost point I reached while in California. The immense distance seemed to be easier to realize than ever before; and the very thought of the vast expanse filled my soul with wonder and reverence for the great Father who rules over all. Our proof-reader suggests that, when one considers how much further off Jupiter is than the moon, one might consider the moon as almost in the next dooryard; for although it is a quarter of a million of miles to the moon, it is 332 millions of miles to Jupiter when the earth and Jupiter are both on the same side of the sun; from which we see that Jupiter was probably 1328 times further than the moon on this night. It was agreed that I should signal the neighborhood when the star came out. It was not visible for some time to the naked eye; but through the opera-glass I caught the first glimpse of the planet as it began to emerge. It looked something like the half of a pea stuck on the side of a great pumpkin. It moved so slowly, however, for some time that I thought it was my imagination instead of the real planet. And just then I enjoyed through the opera-glass seeing Jupiter as a little round ball, or a little globe of fire, if you please, perhaps not much larger than one of the periods on this printed page. Although it seemed so small compared with the moon, it is in reality as large as 66,150 moons all jumbled together in a heap. While it was near to the bright moon, the globular shape was very clear and distinct; but when it got off on its pathway away from the moon, strange to say my glass did not show the globular form at all. It was only a bright, blazing, twinkling star. Now, ever since that night I enjoy looking at the moon and Jupiter as I never did before. At this date, Sept. 18, Jupiter is away off on one side of the heavens, while the moon is clear on the other side. They have thus traveled thus far apart in a little over two weeks, although they are both going in apparently the same direction.

If you get up in the morning before daylight, or before there is any glimpse of sunrise in the east, you will see another star of wondrous beauty. It is brighter, and makes more of a blaze, than does Jupiter, for it is at least ten times nearer to us. This is Venus, the twin sister of our own beautiful planet. Now, one who has never become acquainted with the stars, nor studied their wonderful movements, has, as it seems to me, lost one great part of the enjoyment of life. Well, the things I have mentioned are about the hundredth part of the glimpse we may get of the workings of the machinery of the universe, if we use our eyes and ears and intellects that God has given us. In the *Orange Judd Farmer* of a recent date,

our old friend O. Judd tells us by the statistics that the oil product is rapidly decreasing, and suggests that it will probably fail entirely in a few years. He says, however, that we need not feel bad about it, or even troubled, even if our coal-oil lamps are soon to be relegated to the garrets or corncribs as useless truck. Electricity is coming fast on the heels of kerosene. Yes, it is chasing it up just as that star chased the moon, and went ahead. Our county fairs, conventions, and expositions, while they give glimpses of the machinery that man is building, at the same time give us also wonderful glimpses of some of the machinery of the universe.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

TRANSPLANTING-TUBES.

IT is my impression that the value of these has not been fully realized. In taking the place of potted plants for strawberries alone, am I sure there is a wonderful saving in time. To get potted plants you are obliged to provide yourself with pots; then they must be planted, and a runner put in place; and unless it rains, at least a great part of your pots will be failures. When they are fully rooted they must be examined again, and taken up when they are just right. My experience is, more or less of the pots will be overlooked and lost until the hoe or cultivator strikes them at some future time, especially if you employ somebody else to do the work. Now, with transplanting-tubes you simply do nothing until you want to use your plants. Then go over the ground and take out such ones as please you. Set the tube over it, press it down until it is just deep enough to lift the plant—dirt, roots, and all. I mention this because one friend pushed the tubes down level with the ground, and, as a consequence, he had no cup above the plant to contain the water, and he could not get the plants out. Now you can put your plants where you want them, at once, and they will not stop growing, nor heave out by frost in the winter, any more than if they had not been moved at all. The job can be finished at one time, and there is nothing more to be done. The patch set out during our recent drouth have every one lived. There had been no rain for two weeks when we put them out, and there was none for nearly two weeks afterward. Some of the tops died down, and I told my wife that I guessed that half of them were dead. After a rain I asked her to find a single plant in the whole 3000 that was dead. She finally found just one; but I stepped over and pushed the dirt away, and showed her a bunch of green leaves that had not yet got above ground. Plants can be moved where you wish, whether it rains or not, and you need not lose one in a thousand. Furthermore, you may have a splendid crop of fruit the very next season. About the finest show of strawberries I ever saw was where I put out 3000 plants last year, after digging

our early potatoes. The following extract from the *Rural New-Yorker* shows that friend H. A. March has already used the device for raising American-grown cauliflower seed :

RAISING CAULIFLOWER SEED IN PUGET SOUND.

To get the plants we sow the seeds about September 1, in a rather poor soil, giving them plenty of room, the rows being a foot apart and the seeds sown thinly in the rows. This gives us stocky and hardy plants, which, we think, are less liable to damp off when transplanted. About November 1 we transplant the plants into cold-frames six inches apart each way, as we wish to keep them growing a little all winter. The glasses are kept on at night and through heavy rains. In case of a cold snap, we cover the glasses with mats; but that is not often necessary, for we seldom have a temperature colder than 16° above. Every thing depends on good plants and an early start in the spring, for we raise two crops the same season, and an early frost on our unripe seed is sure to ruin the crop. Now, to set the plants out and make them grow from the start, a line is stretched along one of these flat ridges; a boy goes along, and with a three-foot marker marks the spots for the plants; a man follows with a hoe and makes a hole, about the size of a quart dish, to receive each plant. During the winter we have gathered up 200 or 300 tomato and oyster cans, melted off the tops and bottoms, leaving tubes about five inches long by three or four across. Now, armed with a light wheelbarrow with a wooden tray containing from 50 to 75 of these cans, we go to the cold-frame (having well soaked it with water the night before); take a can, set it right down over the plant; press the can into the soil about two inches, and, with a light shove to one side, lift the plant without disturbing the roots; fill our tray and start for the field; run the barrow between two rows, and set a can and plant in each of the holes just made. A boy follows with a watering-pot containing warm water, and pours a gill into each tube, which softens the soil so that the tubes can be lifted right out, leaving the plant standing in the hole. We brush a little dirt around the plant and firm it with the blade of the hoe.

Now we have our plants set, and not one ever wilts in the hottest spring day. In two or three days the cultivator is started, and kept a going once a week until the heads begin to form.

THE IGNOTUM TOMATO.

At present our orders are considerably ahead of our supply of seed, though we have the promise of quite a little from the friends who received trial packages. One lady who purchased 200 Ignotum plants of us in June was offered \$17.00 for the seed she saved. It is gratifying to notice what a prominent position the Ignotum is destined to take among tomatoes. We copy the following, from *Garden and Forest*, of New York, for Sept. 4 :

An interesting exhibition of tomatoes was on view at the seed warehouse of J. M. Thorburn & Co., in this city, last week. Eighty varieties were named; and although several of them were plainly duplicates, the diversity of form and color and texture was so marked that some fifty distinct types could be recognized. The smooth outline and solid flesh of some of the newer varieties, like Thorburn's New Jersey, proves what can be accomplished by patient selection; and yet the tomato which, perhaps, showed the most compact and yet the finest texture, was Ignotum, which, as its name implies, is from absolutely unknown parentage.

THE DWARF LIMA BEANS.

We have already harvested several bushels of the Henderson dwarf lima. In quality for table use, it is, so far as we can tell, fully equal in flavor to the pole limas. My wife says if she were blindfolded when eating them she could not tell one from the other. The little bushes are very productive, and they ripen quite early, which is quite a strong argument in their favor. Another

thing, a peck of pods will make more quarts of shelled beans than a peck of pods of our large limas. The reason is, the large limas have so wide a pod according to the size of the bean. It is about as much work to shell the little beans as to shell peas. What shall this new dwarf lima be called? Peter Henderson has given it his name; but it transpires that the bean was well known in several localities, and has been catalogued for years as the Dwarf Sieva, or Carolina bean. It seems to me it would be a great blunder to change its name just because it has been brought prominently before the public. It may be that Peter Henderson did not know it was already catalogued and had an established name. But if he did not know it, he certainly knows it now. Landreth has had it in his catalogue some time, and I have also found it in other catalogues.

THE KUMERLE LIMA BEAN.

This seems destined to prove a wonderful acquisition. Its only fault is the length of time it takes in ripening. Ours are now just right to cook, but we expect frost daily. The beans are monsters. They are not only large around, but fat, or thick through, and one of them makes a bigger mouthful than any other lima bean I ever saw or heard of. They are also wonderfully productive. One of our plants started to run up on a pole, and has branched out until there are at least a hundred pods of immense lima beans. I can not very well count them now, because the whole plant is such a swamp of foliage. They need considerable room, but they will surely give a tremendous crop. We hardly dare take enough of them to cook for a taste. Probably the new crop will not be worth its weight in gold, but very likely the beans will command their weight in silver. Until somebody informs me of a supply of them I shall take the liberty of putting that value on them.

I promised to have a photograph of the plant; but it has such a dense pile of foliage there will not be much to see. The pods are all concealed by the great leaves. Somebody wrote to me that the pods must be supported on brush or sticks, or they would rot during very wet weather. Very likely this is true; and although such a support might not be as expensive as poles, it may be well to consider it.

THE OREGON EVERBEARING STRAWBERRY.

At this date, Sept. 27, we have received three different lots, of one dozen each, by mail. On the first ones, on account of the great distance, the moss was apparently as dry as it ever would be, and the plants were in the same predicament. It did not seem to me that there was a chance for them to grow. However, I concluded to give them a chance. They were put in the rich soil of our plant-beds, watered, and shaded, and, strange to say, in a week one of them sent out a little green leaf; and in a day or two after, another one did likewise. Now, please, friends, do not be in a hurry to say that plants are dead, especially if they are a valuable variety. It will doubtless take sometime for them to make strong plants; but with strawberries sent a long distance,

I think it a very good thing to put them in rich soil, where you can shade and water them for a week or two until they send out new roots; then take them, dirt and all, to the field, and you can make a pretty sure thing of it. Friend Winquist writes as follows in regard to the new strawberry:

Friend Root:—I am literally flooded with orders, and have only a limited number of plants left to sell, as I intend setting out two or three acres this winter, because they bring me more net cash than all other berries, fruit, etc., combined. I had no idea that my little notice would bring so many orders.

For runners and large plants, plant on rich land; if for berries all summer, plant on your poorest land. We now get 40 cents per box, wholesale, for our berries, and can not supply the demand at that price. We got as low as 2½ cts. per lb. or box for nice Wilsons this spring, and paid 1¼ cts. for picking; had to go begging at 2½. They do not produce nearly as many runners as do the common varieties, neither do they bear as many years, although they bear as many, if not more, crops in their life. The berry was originated here at Mount Tabor by Mr. N. Remillard, who sold his first plants as high as twenty dollars a dozen. He has no plants for sale now, and he says that he refused to sell Vick any. One of his neighbors got some Chinamen to steal plants from him. In regard to the berry, I refer you to Mark Levy, Portland, Ore., also to Levy & Spriegel, Portland, Ore.

Your climate in the States, I think, is better adapted to the plants than this, as you have show-ers during the summer, while here we have but little rain during the summer, or dry season.

SETH WINQUIST.

Mount Tabor, Or., Sept. 20, 1889.

He has now advanced the price to 75 cts. per dozen, or 50 cents per ½ dozen.*

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 1, 1889.

Let my mouth be filled with thy praise and with thine honor all the day.—PSALM 71:8.

WE have at this date 9115 subscribers.

THE HONEY MARKET.

WE clip the following from the *American Grocer*, of New York, of Sept. 25:

The market on this article is firm, consignments few, and higher prices looked for. California crop is about all in, with the exception of a few odd lots

still in the interior. Prices will undoubtedly be too high for the Eastern trade.

Perhaps it may be well to add, that we have never had so good a demand for honey before; but purchasers are very particular about having a good article. There seems to be somewhat of a disposition to wait for better prices on the part of some; but altogether, we think our honey will be taken up at fair prices quicker than it has been any season before for a long time. The false statements of the newspapers seem to have blown over a good deal, and truth is beginning to assert itself; therefore the public are asking for honey with more confidence than they did a few months ago.

DON'T SELL TOO CHEAP.

We had a pleasant call a week ago from Joseph Nysewander, Des Moines, Ia., publisher of the *Western Apiarian*. He said, while here, that very nice comb honey was selling in Iowa, in a wholesale way, at 10 cts., and some even as low as 8½; that nice extracted was selling for 5½ and 6. Now, if you notice the above report of the New York market, and the quotations in the Honey Column, from the East, and remember that the freight from Chicago to New York, Boston, or Philadelphia on comb honey is 75 cts. per 100 lbs. on extracted in cans boxed, or kegs 65 cts. per 100, and in barrels 50 cts. per 100, you can easily see that there is an opening in the East for some of the surplus west of Chicago, without selling at such low prices. Remember, however, that there is considerable risk in shipping comb honey so far in small lots, especially when not well packed and properly loaded on cars.

HOW I RAISED 100 BUSHELS OF POTATOES FROM A QUARTER OF AN ACRE.

ABOUT a year ago I purchased 50 bushels of Lee's Favorite potatoes for seed, paying 50 cents a bushel for them. They wintered splendidly; but in the spring I found myself unable to get even what I paid for them. Finally, along in May I began selling them for 10 cents a bushel, to get them out of the way. Many of them had sprouts on them six inches long. When it was pretty evident that no one wanted to buy any more for seed, I took about 20 bushels of the largest and finest ones, and planted them on a quarter of an acre of our rich market-garden ground. You know I have been telling you that, if you want earlier potatoes than anybody else, plant whole ones, and the biggest ones you can get. Well, these potatoes covered the ground sooner than any I ever saw before; and in just a little while the ground began to heave and crack open with the great beauties underneath. They had plenty of rain, and therefore went right along from planting to maturity. They were dug, and placed in the cellar at a cost of only 3 cents a bushel. We used a cheap potato-digger that cost us only \$12.00. Do you ask what the matter is with a cheap potato-digger that will give such a result as this? Only one trouble, my friend: In plowing the ground and fitting it for cabbages afterward, the boys took up at different times nearly ten bushels that the digger missed. It cost a good deal more than 3 cents a bushel to get out those last ten bushels.

Moral.—Whenever potatoes are very low in the spring, it will pay you to plant perhaps even one hundred bushels to the acre, for seed; for large potatoes are worth a good deal for manure whenever they can not be used for any thing else.

*Please take these prices instead of those in his advertisement on next page. Some complaints have been received because friend W. returns the money instead of filling the order; but I believe it is always considered honorable in such matters to return the money when the demand is beyond the supply.

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SPECIAL NOTICES.

DISCOUNTS FOR ORDERS RECEIVED BEFORE NOV. 1.

Remember, there is less than two weeks' time to get in orders so as to get the best rates mentioned on the first page of the cover.

FULLER'S STRAWBERRY CULTURIST.

The little book we have been so long selling for 15c is now revised, enlarged, and put in stiff covers. The usual retail price is 25c. Our price is 20c; and if wanted by mail, 3 c more for postage. The revision was made in 1887. Please take the above price instead of 15c, as it appears on the cover of this issue.

AN APPENDIX TO DOOLITTLE'S BOOK ON QUEEN-REARING.

An appendix to "Scientific Queen-Rearing," by G. M. Doolittle, is given in the Second Edition, which details his further experiments in his methods of queen-rearing.

This appendix will be mailed free of cost to all who have the first edition, upon application at this office. It is now ready for delivery. The second edition of this interesting book will be mailed to any address, postpaid, for \$1.00.

JERSEY WAKEFIELD CABBAGE SEED.

We have just purchased from H. A. March his entire season's crop of stock seed of the Extra Early Jersey Wakefield cabbage. It is my impression that there is no better strain of this cabbage seed to be had in the world. Notwithstanding this is stock seed, so long as our supply lasts our price will be as heretofore: Packet, 5c; oz., 20c; lb., \$2 50. If wanted by mail, add the usual 9c extra for postage and packing. As our supply is limited, it may pay you to order what you shall need for the next season, at once. Our friends in the South will need to plant it now—that is, wherever cabbages winter in the open air. See below what friend March says in regard to the seed furnished us:

FRIEND ROOT.—We have saved the stock seed for you, and it is No. 1—the choice heads of over two acres of seed. D. M. Ferry & Co. gave my cabbage and cauliflower seed a good trial, and have bought over \$3000 worth of me. One of the firm took the trouble to come out to Puget Sound on purpose to see our seed-farm and our manner of growing seed. He was so well pleased that he ordered every pound we had. H. A. MARCH.

Fidalgo, Wash. Ter., Sept. 7.

Bee-Keepers & Supply-Dealers, Please Take Notice.

We will allow a heavy discount this fall and winter on all orders received for supplies. Estimates gladly furnished, and correspondence solicited.

Our new price list will be ready about Dec. 1st. Send for it. 20tf

A. F. STAUFFER & CO.,
Mention this paper. Sterling, Ill.

ODD BUT TRUE.

Send me the names of 10 regular subscribers to the American Agriculturist, or Ladies' Home Journal, and I will give you next season your choice of the following: 1 untested Italian queen, 13 Laced Wyandotte eggs, 13 B. Leghorn eggs, or 10 S. S. Hamburg eggs. All I want is the names of 10 persons who take either of the papers. Write for catalogue of nearly 2000 papers at reduced rates.

C. M. GOODSPEED, Thorn Hill, N. Y.

137 In responding to this advertisement mention GLEANINGS.

THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free.

W. Z. HUTCHINSON, Flint, Mich.

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APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75 PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

GOODSELL & WOODWORTH MFG. CO.,
3tfdb ROCK FALLS, ILLINOIS.

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BEES
16tfdb

SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at \$1 a year—the oldest, largest and cheapest Weekly bee-paper. Address BEE JOURNAL, Chicago, Ill.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars. CHAS. DADANT & SON, 18tfdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange 10,000 Cuthbert raspberry-plants, for sections, foundation, or extracted honey. I will give a bargain on the above plants. 19-20d P. D. MILLER, Grapeville, Westm'd Co., Pa.

WANTED.—To exchange improved Hammoniton Incubator, capacity 240 eggs, new, for honey or offers. A bargain. FINIS A. WOOTTON, 20-21d Skilesville, Muhlenberg Co., Ky.

WANTED.—To exchange a first-class self-regulating Incubator, Brahmas and Langshans. Want an extractor, foundation-mill, bees and supplies. 20d F. T. WEATHERILL, Jonesville, N. Y.

WANTED.—To exchange 2 L. frame nucleus, with tested Italian queen, worth \$1.00, queens, each, 50c, for white paint, or offers. MRS. OLIVER COLE, Sherburne, Chen'o Co., N. Y.

WANTED.—All persons who would like to secure a home in the South, to read my advertisement in GLEANINGS for Sept. 15, page 728.

DR. C. F. PARKER, Mentone, Ala.

Black and Hybrid Queens For Sale.

Nine dozen black and hybrid queens, \$2.50 per dozen. ANTHONY OPP, Helena, Ark.

BEE-HIVES, SECTIONS, ETC.

WE make the best bee-hives, shipping-crates, sections, etc., in the world, and sell them cheapest. We are offering our choicest white one-piece $4\frac{1}{2} \times 1\frac{1}{4}$ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. Itfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

RERUM COGNOSCERE CAUSAS.

TO know the Causes of Things, is the key to Success in any industry. If you wish to succeed in the **Bee Business**, you must read and become acquainted with the most Successful Methods of Bee-Management and Honey-Production.

LANGSTROTH'S WORK,

REVISED BY DADANT,

Contains the result of **practical experience** with Bees. It gives the Physiology of the Bee, with numerous **Quotations** from the latest Scientific Writers, the Description of the **best Hives**, Directions for the Proper Management and Handling of Bees; the most **Practical Methods of Queen-Rearing**, **Swarming** (Natural and Artificial), with controlling methods; instructions on Establishing Apiaries, Transferring, Shipping, Mailing, Feeding, Wintering; the best methods of producing **Comb and Extracted Honey**, the Handling and Harvesting of Honey, the Making of Comb Foundation, etc., etc.

The instructions for the **Rendering of Beeswax** are alone worth the price of the Book, to many bee keepers who waste a part of their wax in rendering it.

This book, "the most complete ever published," is shortly to be published in the French, Italian, and German Languages, by Practical European Apirists. It is highly recommended by all publishers of Bee-Literature in the Old World as well as in the New.

Cloth Binding, 550 Pages, 199 Engravings, 19 Full-Page Plates. Gilt front and back. This book is an Ornament to any Library.

Price: By Express, \$1.85. By mail, prepaid, \$2.00. Special prices to Dealers who wish to advertise it in their circulars.

We also offer for Sale, **40,000 Lbs. of Honey**, of our crop of 1889; **25 Tons of Comb Foundation**, Smokers, Bee-Veils of Imported Material, etc. Send for Circular. Address

3tfdb

CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

FOR PURE ITALIAN BEES,
POLAND-CHINA SWINE, WHITE AND BLACK
FERRETS, WHITE RABBITS, WHITE
AND BROWN LEHORN CHICKENS, AND
MALLARD DUCKS, ADDRESS
N. A. KNAPP, ROCHESTER, LORAIN CO., OHIO.
Itfdb

BEE-KEEPERS and FRUIT-GROWERS,

Send for my price list of

BEE-KEEPERS' SUPPLIES and STRAWBERRY-PLANTS.

Twenty-five varieties to select from.

Address F. W. LAMM,

Box 106, SOMERVILLE, - BUTLER CO., OHIO.
18-23db

MUTH'S

HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to **CHAS. F. MUTH & SON,**

CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to Bee-Keepers."
(Mention Gleanings.) Itfdb

BEE-HIVES, SECTIONS, ETC.

We are now selling our No. 1 V-groove sections, in lots of 500, at \$3.00 per 1000; No. 2 sections at \$2.00 per 1000. For price of Italian queens, foundation, smokers, etc., send for price list.

J. STAUFFER & SONS,
Successors to B. J. Miller & Co.,

16tfdb

Nappanee, Ind.

In responding to this advertisement mention GLEANINGS.

KIND WORDS FROM OUR CUSTOMERS.

I received my bees all right. I am well pleased with them.
WESTON CARROLL.
Union, Me., Aug. 30, 1889.

Smokers and A B C received. Both are all you claimed for them.
A. L. REDDEN.
New Orleans, La., July 8, 1889.

Bees were received in splendid condition, and are doing well. Accept my thanks for promptness.
ALBERT WHITNEY.
Birmingham, Mo., June 22, 1889.

I received the Dovetailed hive and sections all right. They give perfect satisfaction.
MRS. J. F. CONNER.
Sand Beach, Mich., Oct. 1, 1889.

Here is another: Please leave out that ad't in GLEANINGS, for I have had so many orders for queens that I can't fill them all.
F. HOWARD.
Fairfield, Ill., Sept. 8, 1889.

A GOOD WORD FOR SUPPLY-DEALERS.

The smoker is received, and I like it very much. You are as prompt as H. P. Langdon and W. T. Falconer. They both are grand good men to deal with.
Cooperstown, N. Y. E. U. PARSHALL.

The A B C of Bee Culture is just splendid. I have got a good many good hints and lessons from it already, which will save me a good deal of work.
Ravenna, Mich. HERMAN J. KUSIG.

I received the foundation I sent for, June 20, and I am very much surprised at the small amount of time you took to mail it to me, and also at the good quality.
JOHN MEL.
Glenwood, Cal., June 24, 1889.

I received the queens in fine shape, and am well pleased. They are the yellowest I ever saw. I introduced them to a large colony of black bees, without trouble.
THOS. E. ELAM.
Mulberry Grove, Ill., Aug. 31, 1889.

The queen-bee arrived safely and satisfactorily. I am well pleased with her and with your directions. I have introduced her successfully. She came to hand on the morning of the 15th.
C. R. MYERS.
Flemington, Pa., Aug. 16, 1889.

I have the pleasure of acknowledging the arrival of goods in fine condition, and according to my order, for which I am pleased to inclose you a balance of — due you on above order, with thanks. Your method of packing goods is grand.
Litchfield, Ill., Aug. 11, 1889. R. S. JOSEPH.

My husband bought a swarm of bees in the spring, and we were advised to get your A B C book. We did so, and that book is the most interesting one I ever read. I study it all the time.
MRS. I. S. NEWCOMB.
Sioux Rapids, Ia., Sept. 14, 1889.

I received the nucleus I ordered of you, June 13. The bees were in fine condition. The queen is beginning to lay nicely. I notice from your card, that you shipped the bees the day you received my order. Thanks for your promptness.
J. M. THOMPSON.
Sherrodsville, O., June 17, 1889.

I received the queen you sent, all O. K. Many thanks for prompt delivery. M. FREISMUTH.
Wheeling, W. Va., Aug. 5, 1889.

SENDING QUEENS TO CALIFORNIA.

The select tested honey queen came to hand to-day in good condition; only one dead bee in the cage. J. F. MCINTYRE.
Fillmore, Cal., Sept. 11, 1889.

LAYING, THE THIRD DAY AFTER ARRIVAL.

The queen mailed me Sept. 6 arrived in good order. It was introduced according to instructions, and commenced laying the third day. B. YOUNG.
Girard, Pa., Sept. 16, 1889.

I just received a sample copy of GLEANINGS. It is much improved since I last saw it. I enjoyed the sermon, also the sketch of "Huber," and many of the shorter articles. MRS. H. A. D. WESTOVER.
David City, Neb., Aug. 24, 1889.

SENDING STRAWBERRY-PLANTS TO MISSISSIPPI.

The plants recently ordered from you have been received in beautiful condition, and, like every thing else you do, the fulfillment is better than your promise. C. P. COFFIN.
Pontotoc, Miss., Sept. 30, 1889.

SENDING STRAWBERRY-PLANTS CLEAR TO OREGON.

The strawberry-plants came to-day in prime condition. Many thanks for your promptness. Bees are working now on white clover. It has bloomed since the rains. E. J. LADD.
Portland, Ore., Sept. 20, 1889.

A PLEASED CUSTOMER.

I thank you for your promptness with my orders for goods I got of you this spring and summer. The 22 one-story chaff hives came to hand all right. Every piece was number one. The queens are doing finely. E. M. BENNETT.
South Charleston, O., Sept. 19, 1889.

DOVETAILED HIVE JUST THE THING LONG LOOKED FOR.

The Dovetailed hives received, and are just what I have been looking for during the past three or four years. I have examined numbers of catalogues. Can I say more? G. F. AYRES.
Atherton, Ind.

Mr. Root:—I must thank you again as I report my success with the little package of Ignatum tomato seed you gave me; they gave us the first ripe tomatoes, growing alongside of other best varieties obtainable, with the same cultivation. I have never seen a tomato, with all the good qualities of the tomato combined, that the Ignatum has. JAS. W. WALKER.
Green Spring, W. Va., Aug. 18, 1889.

A POUND OF BEES AND A QUEEN TO NEWARK, DEL.

The bees, etc., you shipped Sept. 23d were received in Newark, Del., Sept. 26, in the forenoon, in good condition. About 3 to 5 per cent of the bees were dead. The queen was alive and active. They are of fine color; the queen is very beautiful. I am well satisfied with the lot. I have given them some unsealed brood and honey, and will try to build them up rapidly. Express charges were 50 cts., which I think very reasonable. T. JAQUETT.
Newark, Del., Sept. 27, 1889.

I want to flatter you on your promptness in filling orders. The sections, foundation, and wax-extractor, all came in good time, and in good order. The sections are nice; the foundation is fine, and the wax-extractor is a daisy. The reason I had them sent by express was, I wanted to use them this summer, and I did not know whether they would get here in time by freight. T. BROWN.
Cloverdale, Ind., July 11, 1889.

GLEANINGS A NECESSITY.

I would say that I regard GLEANINGS as a household necessity, and a blessing to myself and family, not only temporally but spiritually. I think it would please you to know that "Uncle Amos" has a warm place in the hearts of all my family. Even our little four-year-old baby Georgie talks about

Uncle Amos, and says he loves him. May you live long, and continue to lead us by example and precept in the way you have in the past, is my desire. S. H. BEAVER.
Tamora, Neb.

THE DOVETAILED HIVE JUST THE HIVE FOR THE GREAT MASS OF BEE-KEEPERS.

The Dovetailed hives ordered of you arrived in first-class order, and freight very moderate. We admire your ingenious method of crating, and are much pleased with the hives. We consider the Dovetailed as just the hive for that great class of bee-keepers who, farmers also, make bee-keeping an extra; have few appliances for putting hives together, and devote their attention to the production of comb honey exclusively. R. N. LEARNED.
Newton, N. J.

PLEASED.

Editor Gleanings:—I must acknowledge that you are the most prompt and reliable dealer I have tried as yet. I have been doing business with you in father's name, C. C. Bartlett. The goods have all got here in good shape; the mandrel and saws sent last winter are doing the best of work. I think GLEANINGS a fine paper, and the A B C book is now a superb volume, of which you may well be proud; and didn't you hit it, though, when you improved the Clark smoker? I wish you success.

Our honey season has been fair here. The bees swarmed to Christmas. Our main dependence is alfalfa. We have had no rain this summer, but were favored with snow last winter, so we have done very well. BART BARTLETT.
Vernal, Utah, Aug. 26, 1889.

TRAVELS AND THE HOME TALKS.

I have not yet received my GLEANINGS for July 15, but I have received the one for August 1. Thinking it must be lost I thought I would ask you to replace it, as I should not like to miss the first part of your trip to Wisconsin. I may say I most thoroughly admire your Home talks, as they seem to breathe such a Christian spirit. I believe I myself have been quickened to self-examination by your practical every-day life sort of expositions on our Savior's teachings. I myself belong to the blessed Master, whom I try to serve in the Sunday-school, the pulpit, and by the every-day life of one who tries to love his neighbors.

In regard to bees, blacks are the best here, all things considered. Imported Italians are no good in the north. My bees, 28 colonies, are working now on heather, after doing well on clover. I have the Scotch hills here in sight on the north, the Cumberland tells, with Skiddaw in full sight on the south. J. STORMONTH, JR.
Kirkbride, Cumberland, England, Aug. 21, 1889.

"THY WORD IS A LAMP," ETC.

Wouldn't it save some trouble if the editor of GLEANINGS carried a small "pocket-lamp" with him on his travels?

[The above comes on a postal card, written in a feminine hand, but no name was signed. To be sure, you are right, my good friend, and I have wondered that somebody did not take this matter up sooner. The reason why I did not have a Bible in my pocket was that I started out, as I usually do, with the expectation of going across the country with horse and buggy, and a good many times on foot; and I have learned by experience that every thing that can be dispensed with is a hindrance; therefore I did not carry even a Bible, supposing that, as a matter of course, I could readily lay my hand upon one anywhere; and I was not once disappointed, except in that great hotel. When I started away my wife brought me my Sunday-school quarterly; but I told her it would cumber my pockets, and I thought that I should be able to find one of some kind or other, wherever I was stopping. Another thing, I like to get hold of a Bible where I stop, and see how much it is used. I like to see a soiled, well-worn Bible. If it has a little beeswax and propolis on the lids, I do not feel troubled at all. I had decided, however, before your friendly suggestion came, to be provided with a "pocket-lamp," and one has already been laid aside, with a small copy of Gospel Hymns, to be ready for the next start off. Now, good friend, had you given me your name, possibly I might have called on you and asked for your Bible.]

HONEY COLUMN.

CITY MARKETS.

BOSTON.—Honey.—Honey is moving fairly well from 16 to 17c, with occasionally an extra fancy lot at 18c. Some large retail dealers in our city secured quite a quantity of white honey, averaging about 13 or 14 ounces to the comb, and are selling it at 15c per comb. This has tended to demoralize our other retailers, as they want to compete, as the large retailers have filled their windows with the honey, and marked it very prominently. Two-pound combs a little scarce, selling for 16 or 17c. Extracted, 8@9c. No beeswax on hand.

Oct. 10. BLAKE & RIPLEY,
Boston, Mass.

COLUMBUS.—Honey.—Arrivals of honey have been liberal. Owing to large shipments of western honey, bought there at 11c, being placed on the market, the price has been lowered to 15c, at which figure we had to sell a good part of our consignments, to meet competition. Large quantities still on hand, and the outlook is for still lower prices. No sale whatever for dark honey.

Oct. 10. FARLE CLICKENGER,
Columbus, Ohio.

CINCINNATI.—Honey.—There is a quiet but steady demand for choice comb honey, at 15@16c in a jobbing way; dark is of slow sale, at 10@12c. Demand from manufacturers is fair for extracted honey, and it is good for best qualities for table use.—Beeswax is in good demand, at 20@22c for good to choice yellow on arrival.

Oct. 12. CHAS. F. MUTH & SON,
Cincinnati, Ohio.

CHICAGO.—Honey.—Honey is selling with more freedom this month at the following range of prices: Choice white comb in pound sections, 13c; crooked or stained combs, 10@12; dark, in comb, 9@10; extracted, white, in kegs or cans, 7; in bbls., 6½@7; dark, 6. Beeswax, 25c. R. A. BURNETT,
161 So. Water St., Chicago, Ill.

NEW YORK.—Honey.—Honey is in excellent demand. We quote: Fancy white, 1-lb. sections, 15@16c; 2-lbs., 13@14; fair white, 1-lb., 13@14; 2-lbs., 11@12; buckwheat, 1 lb., 10@11; 2-lbs., 9½@10. Extracted, basswood and white clover, 8c; orange blossom, 8½; buckwheat, 6; California, 7½; Southern, 7½c per gal.

Oct. 11. HILDRETH BROS. & SEGELKEN,
New York.

ALBANY.—Honey.—Market some easier, but demand good, and any attractive desirable style comb sell well. Are short of small comb buckwheat honey. Clover, 15@16c; mixed, 13@14; buckwheat, 12@13. Extracted, buckwheat, 6; clover, 7½@8.

Oct. 11. H. R. WRIGHT,
Albany, N. Y.

DETROIT.—Honey.—Best white, in one-pound sections, 14@15c. Sales slow; supply not large. Extracted, 8@9.—Beeswax, 23@24.

Oct. 11. M. H. HUNT,
Bell Branch, Mich.

ST. LOUIS.—Honey.—No change in market, though firmer. Demand fair.—Beeswax, prime, 22c.

Oct. 11. D. G. TUTT GRO. CO.,
St. Louis, Mo.

KANSAS CITY.—Honey.—The receipts are very light. Demand increasing. We quote: 1 lb. comb, white, 13@14c; dark, 10@12; 2 lb., white, 12@13; dark, 10@12. Extracted, white, 7@8; dark, 6.—Beeswax, none in market. CLEMONS, CLOON & CO.,
Oct. 12. Kansas City, Mo.

PHILADELPHIA.—Honey.—Honey in 1-lb. sections (No. 1) is in good demand. Quite a number of inquiries for same. Yellow beeswax is wanted at 23c. Good outlet for both. CHAS. E. SHOEMAKER,
Oct. 9. 44 So. Water St., Philadelphia, Pa.

FOR SALE.—1000 lbs. white-clover honey, in 60-lb. tin cans. Will put on cans here at 8c per lb.
20-21d R. I. BARBER, Bloomington, Ill.

FOR SALE.—About 1000 lbs. buckwheat extracted honey, put up in kegs holding 150 to 160 lbs. each. I will take 6c per lb. f. o. b., kegs thrown in. Will take beeswax in exchange. J. I. PARENT, Birchton, Saratoga Co., N. Y.

FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections, and 12-lb. cases, at 15c per lb. (100 lbs. or more). Also 60-lb. screw-cap cans of extracted clover honey at \$4.90 per can; 2 cans in 1 box, \$9.60. Safe arrival guaranteed by freight. OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.
17tfdb

Cheap TUMBLERS & MUGS

If you intend to put up any extracted honey in glass for the retail trade it will pay you to send a postal to the undersigned for price list of tumblers and mugs, also labels suitable for the same.

20-21 2d M. H. TWEED,
154 Webster St., Allegheny, Pa.

"Everbearing" Strawberry.

Plants, by mail, 50c per 6, 75c per 12, \$4.00 per 100. Bears from frost to frost. Plants limited.

SETH WINQUIST,
Mount Tabor, Oregon.

Engines & Boilers.

Complete Outfit, or
Engine Alone.

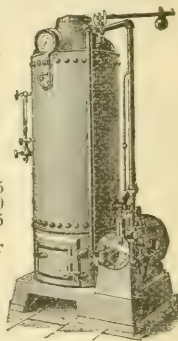
The Best and Most Sub-
stantial Engine Made.

2 Horse Engine and Boiler,	\$125
4 " " " " "	200
10 " " " " "	325

Fully guaranteed. Send for circular. Mention this paper.

MEDINA ENGINE CO.,
Medina, Ohio.

20tfdb



NOW IS THE TIME
FOR MARKETING HONEY, AND NEW YORK
IS A GOOD MARKET.

We make liberal advances in CASH on consignments, sell quickly at highest obtainable market prices, and pay the net proceeds IMMEDIATELY after honey has been sold. We charge for commission and GUARANTEE of payment, five per cent. Ship by freight to

F. G. STROHMEYER & CO.,
WHOLESALE HONEY MERCHANTS,
122 WATER STREET, NEW YORK.



Vol. XVII.

OCT. 15, 1889.

No. 20.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

OUT-APIARIES, NO. XVII.

SPECIAL PLAN OF INCREASE FOR OUT-APIARIES.

YOU probably know better than I what plan of increase is best for you; but there is one way that can be used by means of out-apiaries that I think well to mention, and there may be times when you may think best to use it. One year, with plenty of empty combs I increased 12 colonies to 81, and took 1200 lbs. of extracted buckwheat honey. There is nothing specially new about the plan, only that you can easily make bees stay where you put them, if you take them from one apiary to another.

If you please I will take two colonies to work with, as the same thing can be done with a larger number. As soon as the season will warrant it, take the queen with one frame of brood and bees from No. 1; put it in an empty hive which we will call No. 3, and set No. 3 in place of No. 2, setting No. 2 in a new location. Take from No. 1 any frames not filled with brood, and exchange with No. 2 for frames of brood. No. 1 is now full of frames of brood, and has a full force of bees, and will at once go to work rearing queen-cells. You have your own plans for raising the best queen-cells, and can use them; and the day after the queen is taken away from No. 1, or as soon thereafter as convenient, insert in each frame of No. 1 a queen-cell. If you have no better way, I think you will find that No. 1, if you let it entirely alone, will raise some very good queen-cells; and about nine days after you have taken the queen away, go to the hive and cut out a good cell from a frame which has more than one cell, and insert it in a frame which has none, so that each of the frames shall have a cell. It is not necessary to destroy any of the cells. If there should be several on one comb it will do no harm. If the cells are inserted in the morning, you will probably find them

fastened in all right in the evening; but if any fail you must insert others. Fasten the frames if necessary. Next day take the hive to the out-apiary, making sure that the bees have abundant ventilation. When you get to the out-apiary, smoke the bees so that they will not immediately take flight, and put each frame, with its queen-cell and bees, into an empty hive, thus making a nucleus of each frame, giving each an empty comb. You thus see that each nucleus has its equal share of bees of all ages, and I don't know of any way in which you can thus evenly divide them without taking to another apiary.

In two weeks from the time No. 2 was moved, it will be ready to be operated upon the same as No. 1. Put its queen in a new hive, to be called No. 4, and put No. 4 in place of No. 3. No. 2 can then be taken to the out-apiary, as also No. 3 and No. 4. If none of the young queens have failed, we have as many new colonies as we had frames with queen-cells; and if the hives are 8-frame hives, there will be nine colonies for each one we started with. We are not likely, however, to succeed so well as this, and very likely some of the frames taken in No. 2 will need to be given to some of the first nuclei that failed to secure laying queens. If the increase is five or six fold, it will be doing pretty well. The first colonies formed will become strong enough to spare some frames of brood, which will be needed to build up those started two weeks later. Then if any of them become crowded with honey, the extractor can be used to give the queen more room.

You will see that this is a good way to form a new apiary, for you are relieving the home apiary at the time of greatest increase of bees; and if you are anxious for increase, it is at least a good way. You might thus take 12 or 15 colonies to a new spot where there was good pasturage, especially fall pasturage, and allow them to build up at their

pleasure with very little attention on your part. If you had no empty combs, of course you could not do so well with empty frames or frames of foundation.

C. C. MILLER.

Marengo, Ill.

I know the above will work, because I have done pretty much the same thing, only I did not have any out-apiary. Of course, an out-apiary would prevent all trouble from going back to the old colony, and you can at any time put bees or frames of brood, covered with bees, wherever you like, and they will stay right there.

VARIOUS MATTERS.

CRATING HONEY SO AS TO HAVE EACH CRATE WEIGH AN EVEN NUMBER OF POUNDS.

YEARS ago, when I first began to put up honey for market, I paid no attention to having the amount in each crate weigh an even number of pounds, but I put an even number of boxes in each crate, and in weighing them I marked each crate by the quarter pound. That is, if a crate weighed 30 lbs. 3 oz. it was marked $30\frac{3}{4}$ lbs.; and if it weighed 32 lbs. and 6 oz. it was marked $32\frac{3}{4}$, thus making the $\frac{3}{4}$ the nearest to the one which it weighed. I followed this plan for several years, when I saw some labels advertised, to paste on each crate, which gave the weight of the gross, tare, and net, in ounces. These seemed to me to be handy, so I sent and procured some of them, using them the next year. In sending in returns that year, not a single commission merchant said any thing about the ounces, except to grumble about the way I had marked the honey, and advised me to make my crates in the future weigh an even number of pounds, if I would obtain the best prices for my honey, and save them much annoyance and vexation. The next year found me making each crate weigh an even number of pounds, which thing I have kept up ever since, and in no single instance have I had returns made for a pound less than I shipped. As long as glass was used on each section or box, the matter was very simple; for all I had to do was to sort out the thin glass into piles of the right number for a crate, and the thick ones in the same way, till I had the number of piles that I would have crates of honey. These piles were now weighed, and a label put on each one, telling what it weighed, so that, when the sections of honey were brought out for each crate, and placed on the scales, the pile of glass was taken which would make the whole weigh an even number of pounds when the glass was placed on the honey. By adding this to the tare of the crate I had the gross weight, or just what the crate weighed when it was all ready for market. Later on, when it was not desirable to glass the honey, I sorted the pile of honey all over, placing all the lighter sections in one pile, all of the medium in another, and all those that were extra well filled or the heavy ones in the third. I would now take all the sections for a crate from the medium pile, which would contain the larger bulk of the honey; then if they did not weigh an even number of pounds I would exchange some of these medium sections for either the light or the heavy ones, as the circumstances might require, till the right amount was secured. I know this is a little work, but I have been satisfied that it

well paid me for so doing. Having just crated my honey for market, and thinking that I had never given this item before, led me to do so now. Try it, brother and sister bee-keepers, if you have not already done so, and see if you do not think this a good way.

NON-SWARMERS.

I see by page 733 of GLEANINGS for Sept. 15th, that the editor thinks that the plan I gave to prevent swarming would be the same as "hiving the new swarm and setting it on top of the old one, then in a few days destroying the queen-cells below and shaking the bees and queen in front of the lower one." Not so; as, in this latter case, the bees and queen are on the brood which they had before they swarmed; while in the plan I gave, the bees below would be building comb in the lower hive the same as would any swarm hived in an empty hive, while the brood above would be hatching (with few bees to cover it), and coming down below, so that the strength of the colony would be kept at the highest pitch all through the honey harvest, while during the first 21 days the queen would have all the cells built by the bees to occupy with eggs. I think all will see that the two plans are very different; the first having an uncertain element in it, while the latter places them in that certain condition generally enjoyed by all new swarms during the first 25 days after they are hived.

CUTTING OPEN QUEEN-CELLS TO SEE WHEN THEY WILL HATCH.

On page 754 of same number of GLEANINGS are found some of the points of merit the queen-cell protectors possess; but there is one thing not mentioned there which has been of some service to me, which I believe has never been mentioned. All remember how, in former years, they have been grieved when obliged to spoil one of two nice queen-cells which were built so near together that they could not be separated without cutting into one of them so but that the bees would tear it down and drag out the immature queen. Well, I was not long in finding out that a queen would hatch just as perfectly from a cell having one side gone, if the same was placed in a cell-protector, as she would had the cell been whole, for I have had scores of them hatch perfect queens from such mutilated cells. After finding this out it occurred to me that, if I did not know just when a queen would hatch from a given cell, all I had to do was to remove it from the protector (or do the same before it was put in) and open the cell at the side near the base, look at the immature queen, and put the cell back in again. From curiosity and for experiment I have many times opened a cell to that extent that I could turn the queen out in my hand, look her all over and place her back again; and where care was used I have never known one to fail of hatching a perfect queen afterward. After having looked inside of a queen-cell several times, or turned the embryo queen out in your hands, any one can tell almost to within a fourth of a day when they will hatch. This gives quite an advantage over the past, for many times we have waited for days for the hatching of a cell which finally never hatched at all, on account of the larva dying from some cause or other.

G. M. DOOLITTLE.

Bordino, N. Y., Oct. 7, 1889.

I think, friend D., somebody has mentioned assorting the sections so that each case contains an even number of pounds. I

think each careful bee-keeper will find that it will pay him to do so. It certainly does not pay to leave things at loose ends. Honey is frequently sent us, without the shipper knowing either the gross or tare, trusting all to our honesty. I do not like this way of doing. A great many times we do not care to empty packages of extracted honey, and the weight of the barrel or keg is taken from the shipper, and accepted right along, until it comes to be retailed out.—Years ago I discovered that, during very warm weather, queens, when nearly ready to hatch, would mature just as well out of the cell as in; and I, too, have tumbled them out of the cell into my hand, and put them back again, and had them make nice queens. With the lamp nursery I have had them develop with no cell at all; but I never succeeded with one until it was so near hatching that the legs and wings were pretty fully developed.

ZINC HONEY-BOARDS.

THE VARIOUS USES OF THE METAL IN BEE-KEEPING.

THE invention of the queen-excluding honey-board marks an era in bee-keeping. Popular and useful as these have proved before, we are just learning some of their most important uses, and their possibilities are probably by no means exhausted.

By their use the queen is kept out of the supers, which is of the greatest advantage in extracting. In comb-honey production they are not so necessary, though even here they are very useful, and in some cases indispensable. In dividing, forming nuclei, and selling bees by the pound, it is a great advantage to be able to take bees from a hive without the necessity of hunting up the queen. Queen and drone traps serve a very useful purpose in preventing the loss of swarms and the flight of undesirable drones, though on account of their expense and some other objections they are not in very general use.

A queen-excluding honey-board at the bottom of the hive is much superior for temporary use. To adapt it to continued use, some way of disposing of the drones is necessary. Who will invent an attachment that will lead the drones into a chamber by themselves, from which they can readily be removed, and which will not make it necessary to cut holes in the hive or bottom-board, and will leave the queen-excluding board uninjured for its ordinary use?

Perhaps this is too much to expect, and we shall probably have to combine the drone-trap with the honey-board. Friend Heddon seems to have faith in an attachment to the side of the hive, but has not made the details public. I know that a hole bored through the side of the hive, covered with a small box having a hole covered with a wire-cloth cone on one side, and queen-excluding zinc on the other, answers very well, but I do not like to bore holes in my hives or make a drone-trap a permanent feature in all of them.

RAISING QUEENS ABOVE PERFORATED METAL.

A great deal of experimenting has no doubt been done this season with the new methods of having queen-cells built and queens fertilized above perforated metal. So far as my experience goes, it is

easy to get cells built while there is a queen in full vigor below, though these cells are by no means of the first quality, except under favorable conditions. I have had no success in getting queens fertilized in this way, though I have no doubt that, during the proper season, it would work well. Steady feeding when honey is not coming in freely will probably be necessary to insure success with either plan.

I have had some little trouble this season from the queen going through the perforated metal. This was a lot bought of you two years ago. It seemed as though any queen could go through it whenever she really wanted to; and any strong inducement, such as frames of brood, would be almost certain to bring her through, and I have known queens to go back and forth through it every three or four days. This same zinc, though, almost invariably kept queens out of extracting supers.

I have known some to argue that there was not enough passageway through the break-joint queen-excluding board. Let us see. If I have measured rightly, each perforation has an area of $\frac{3}{16}$ of an inch. The combined area, then, of the holes in a break-joint queen-excluder for an eight-frame hive would be 21.06 sq. in., equal to 27 holes an inch in diameter. The all-zinc break-joint boards for eight-frame hives have, as the combined area of their perforations, 36.85 sq. in., equal to 47 one-inch holes. Of course, some of this area is in corners, and not available for passage; but allowing for this, there is much more passageway than used to be considered abundant with the old-style honey-boards and boxes.

PLAIN SHEETS OF PERFORATED ZINC IN THE BROOD-NEST NOT RECOMMENDED.

The plan of laying a plain sheet of perforated zinc directly on top of the frames does not work well, as usually but a small proportion of the holes is left available for passage. All-zinc honey-boards are not well adapted to use on new hives, as they will sag by their own weight, no matter how straight they may be at first, nor how well nailed to the wood binding. When used on old hives, though, where the zinc is supported in the center by brace-combs, they answer excellently. For the same reason, these boards, when made up, should not be piled up flat, but should be stood on edge. It seems strange that a metal, apparently as firm as zinc is, should thus stretch and sag, but it is a fact.

Dayton, Ill., Aug. 29, 1889.

J. A. GREEN.

THIS SEASON'S OBSERVATIONS.

THE WEATHER, ETC.

THIS year was a favorable one for bees. Golden willow began blooming April 15th, and in a few days the hives were all well filled. We had but little rain from November till the middle of May; consequently the spring was extremely dry. But for all that, bees made a good living through fruit-bloom and buckeye. Locust opened up with fine prospects, but it then began raining, and rained for four weeks. Poplar bloomed profusely at this time, but the weather was too rainy for the bees to do much. Finally it cleared up, and white clover began blooming, though much later than usual, on account of the early drought. Then the bees began to swarm, and kept swarming until July 4. We increased from 20 to 40, doubling up many of the new swarms. Basswood produced but little honey. White and sweet clovers did well.

YOUNG SWARMS ROBBING THE PARENT HIVE.

June 2, we had a second swarm that was hived on frames containing some comb. After a little while I noticed an unusual number of bees going in and out of both the old and new stands. The next day I examined the new stand, and found the combs half built, and completely full of honey. The young swarm had robbed the parent hive of most of its honey. I am confident that they robbed it, for on the evening of the day that the swarm came out it was pretty cool, and not a bee was moving about any hive except those two. I got some flour and sprinkled on the bees coming out of the old hive, and found them all going into the new swarm. We have had several cases of this kind, and right in the midst of a good honey-flow. The parent hive never offers any resistance. But no harm is ever done by this kind of robbing. They never rob except the first day after coming out. I have seen them robbing quite lively late in the evening, and next morning not a bee would go back. One hive is robbed a little every year in this way by its first swarm.

DRONE ASSEMBLIES.

I am inclined to think that drones do not go very far to congregate. This year I heard the loud roaring of drones high up in the air in several places in our locality. Some of the assemblies were not more than half a mile apart.

RED CLOVER.

This year the second blooming of red clover produced honey quite freely. The blossoms were short, and the bees could easily reach the honey. During the drought, when the ground was extremely dry and the air very hot, the bees gathered honey in large quantities from it; and at the present date, Sept. 16, they are still working hard. The brood-chambers are very full of honey; in fact, brood is to a great extent crowded.

HONEY-DEW.

About the 10th of August, honey-dew began to appear on the maple-trees. It came in small quantities at first, but increased each morning for about a week. After that about the same amount fell each night until Sept. 6, when it suddenly ceased. The bees worked on it from daylight until about 10 o'clock. At the end of that time it disappeared, leaving stains on the leaves where the drops had been. It appeared more on warm nights, when there was lots of dew, and lasted longer on days that were cloudy. It always appeared on the upper side of the leaves, never on the under. It came in drops the size of small raindrops; and while some leaves would be covered with it, others would have but little or none. The top branches of the trees produced a great deal more than the lower ones. Some trees had three or four times as much honey-dew on them as others. It had a very distinct flavor of maple syrup about it, and when the sun shone on it a little while, it became thick like molasses. I have seen drops on some leaves, large enough for three or four loads for a bee. On some mornings, when it fell profusely, it could be found on the grass, weeds, and small bushes under the trees. I have seen the small maple sprouts (that just came up last spring, and as yet having but two leaves), distant from any other tree, and yet its two little leaves would be covered with honey-dew. I am confident that this honey-dew does not fall as the dew of the night, but that it is a secretion of the leaves, and that it comes from the limbs and body

of the tree, and is secreted by the leaves; for lately, in cutting up live sugar-tree limbs I noticed a liquid oozing out of the wood close to the bark; and in tasting it I found it to be sweet, having a taste similar to that of honey-dew. I also saw bees flying around the piles of freshly cut wood. When a freshly cut log was left in the sun a while this sap would ooze out between the bark and the wood, and form a bitter-sweet sticky gum. This is something I never noticed before. CHAS. L. GREENFIELD.

Somerville, O., Sept. 16, 1889.

Young swarms robbing the parent hive has been before mentioned. Like yourself, I have been obliged to decide that drones do congregate in a good many places, especially in the vicinity of large apiaries. Your remarks in regard to honey-dew on the maple seem to indicate that it may be a secretion of the plant. Friend France mentioned, while I was there, that one season he saw the bees working strong on the leaves of corn, right where they are united to the stalk. Selecting a hive where they seemed busiest he put an empty comb in the center of the brood-nest. In a day or two it was full, and he threw out the honey with the extractor, put it on the table, and asked the boys to decide what kind of honey it was. One of them replied promptly that he could not tell, but it tasted exactly like the juice from chewing a green cornstalk. This honey was a saccharine secretion directly from the corn—no aphides about it. I have seen it sufficient to keep the bees busy a while in the morning. Now, I think it is possible that maple may, under some circumstances, secrete a sweetish substance in the same way.

AN AVERAGE CROP.

FRANK McNAY REPLIES TO E. FRANCE.

NOTICE on page 738 of GLEANINGS for Sept. 15, that E. France criticises the answers given by some of the respondents in regard to the average crop of honey. He is mistaken in supposing that the honey season opens and closes at the same date in all locations, for I notice that he now reports the same as he did on Aug. 3d, while I at that time considered my crop about half gathered; and as I had taken 20,000 pounds from 350 colonies during the first half of our season, I reported it an average crop *so far* (see question d, Statistics). I now report 26,600 pounds for August and September, making a total of 46,600 pounds for the season, of which 3050 is in one-pound sections, from 65 colonies, and 43,550 pounds extracted from 285 colonies. My bees are in six apiaries, from 35 to 75 colonies in each, located from $\frac{1}{2}$ to 5 miles from basswood; and as it is often asked how far bees may be located from basswood or other forage, and work to advantage, I have kept an accurate record of dates of extracting in each apiary, showing amount taken, distance to forage, etc.; and if you desire I will send you a tabulated record of the season's work. Our work was done with Bingham smokers and knives, and five Novice extractors.

Mauston, Wis., Oct. 1, 1889.

FRANK McNAY.

Let us have the tabulated record, friend M. Your point with respect to the statistics is well taken.

WEIGHT OF BEES.

PROF. COOK REVIEWS THE SUBJECT.

I HAVE felt much interested in this matter of the weight of bees. I find in Keys' old work, p. 92, the following:

WEIGHT OF BEES.

100 drones.....	1 oz.
293 workers.....	1 oz.
4,640 workers.....	1 lb.
915 workers.....	3½ oz.
1,830 workers, a pint, or 6 oz. and 5 drs.	
3,660 workers, a quart, or 12 oz. and 10 drs.	
29,280 workers, a peck, or 6 lbs. 5 oz. and 6 drs.	

Keys adds:—"This statement is made on an average; for they will not prove twice exactly alike, because of their different degrees of fullness, etc."

I asked one of our students, Mr. John W. White, of Lancaster, Wis., to weigh bees, and see how ours agreed with those of Keys, and with those reported by you in GLEANINGS. Mr. White gave his paper before our Natural-History Society last evening. Like Keys, Mr. White found the variation large. He also found that bees a short time dead weighed less than those just killed. I have found it necessary to kill bees, when weighing, as the motion of their wings will often make a large difference in results. Our bees seem heavier than either those of Keys or those at Medina. Let me say, that our weighings are all done on scales so delicate that they will almost weigh a thought or sigh. Mr. White weighed seven lots of ten each. These bees had been long fasting, and were just beginning to die of starvation. The average was 4106 to the lb. While these bees were all near the starvation limit, yet there was considerable variation in weight. Mr. White chloroformed these bees. After they recovered from the stupor, he fed ten bees all they would take, and then weighed them. These weighed 15 milligrams per bee more than the others, or 3626 bees to the lb. The results of Mr. White's weights were a surprise to me, and so I thought I would verify their accuracy. I weighed 20 bees that were caught from the hives. They were then carried in my pocket for two or three hours in a cage while walking about. These bees weighed 108 milligrams per bee, or at the rate of 4222 to the pound. Another lot of the same number, taken after they had sipped all that they would, were chloroformed, and weighed at once. These weighed 123 milligrams per bee, or at the rate of 3781 to the pound. So, friend Root, I think your old average, 4000 bees to the pound, is more nearly correct for our bees than is your more recent estimate. I feel very certain that our bees will average 4000 to the pound; and I think that, when full fed, they will hardly reach more than 3330. You will note that, when starved, they reach only 4225 to the pound. Our bees are a cross between the Syrian and Carniolan. There may be a trace of Italian and German blood, and doubtless is. I had always thought that the Syrian race seemed large, and visitors often say, "Your bees seem very large;" yet I had not supposed there could be so much difference. Of what race were the bees you weighed?

Agricultural College, Mich.

A. J. COOK.

The account of your weighings is very interesting, friend Cook. Your figures are considerably lower than those we report in GLEANINGS for August 1, page 643. If we were both accurate in our weighings, then there certainly must be a difference in the

size of the bees. But this, it seems to us, ought not to account for *all* the difference. Although your scales are probably exceedingly sensitive, yet it seems to us there must be some little chance for variation, because friend White weighed only *ten* bees each time; and from this as a basis he figured the number in a pound. We have some scales here at the Home of the Honey-Bees that are sensitive enough to show a variation when a bit of paper is thrown upon the platform. Now, instead of taking ten bees we weighed a thousand, and then calculated the number in a pound, the thousand bees having been counted by a careful man. Now, do you feel sure that your scales, however delicate they may be, would always record the exact weight of *only ten* bees? The bees we weighed were Italians. They had been dead but a few hours, and had but a little honey in their honey-sacs. You say the bees you weighed were a cross between Carniolan and Syrian. The Carniolans certainly do *look* larger than Italians; and according to Mr. Cheshire's measurements they are larger. We have seen Syrians that appeared larger than Italians; yet to us most of them seem smaller. Would it be too much trouble for Mr. White to weigh some pure Italians, and count out, say, a hundred, and weigh them? We will send him some in a mailing-cage. Perhaps the difference in the size of bees will account for the difference in our results.

MANUM IN THE APIARY WITH HIS MEN.

HORSES IN NIGHT-CAPS AND NIGHT-GOWNS.

"SCOTT, have you a load of honey ready for me to take home?"

"Yes, sir; two of them."

"Good! the more the better. I see the bees are not doing very much to-day. I think basswood is about past, as there seem to be a good many bees around the door of the honey-house. I will back the wagon up to the door, and you may come and help me cover up the horses."

"There, take this thin cotton hood and cover the old horse's head with it while I do the same by the colt. See how the old horse holds his head down; he knows what it all means. Yes, he knows as well as I do when we are near an apiary. He has had experience with stings, hence he is always willing to have his head covered. There, now we will throw these blankets (made of same material) over their bodies, and tie them in front to protect the breast. There, you see they are well protected; and as these covers go down to their knees, the bees do not hang around the horses when thus covered. Formerly we used only our coats to throw over the horses' heads. That answered very well, as that caused the horses to keep quiet. Although our horses were never stung when only the coats were used, yet I was always afraid they would be; and as the coats had to be removed before starting with a load, they were then liable to be stung before getting out of range of the bees. But with these blankets it is different, as we can drive all the way home with them if we wish; but we usually remove them half a mile away from the yards. These

blankets, or protectors, being made in two parts, are quickly put on or removed, without being obliged to draw the lines through them, as one part goes over the lines and the other under. As Fred usually hauls all the honey, and as he leaves his yard tomorrow for that purpose, I am going to take a photograph of him with a load of honey, just as he arrives home with it, and send it to Mr. Root, as he may suggest some improvement.

"I will now get into the wagon, and you may hand me the clamps of honey just as fast as you can handle them; because, as soon as the bees scent the honey they will become altogether too familiar, therefore I want to get loaded as soon as possible, and be off. You can see this wagon-box was made expressly for this business. We can put in 32 clamps on the bottom for one tier, and 5 tiers will make 160 clamps, and 16 sections to the clamp gives us 2560 sections, making a little over a ton of

how to take them off and get the bees out quickly, I have left them all on that were on at that time. Why do you leave them on three or four days after the bees have stopped getting honey?"

"It is because there are always some sections that are not finished up at the time basswood has gone by; and as there is usually more or less unsealed honey in the brood-combs at that time, I leave the sections on a few days to give the bees time to carry it up and complete the sections. But in spite of all that, we shall have a lot of unfinished sections again this year. There, now I have got my smoker well to going, and we are ready to proceed. You say you have 117 colonies here that have clamps on them. All have two, and some three clamps; now, how long do you think it will take us to remove the clamps and get the bees out, and carry them into the honey-house?"

"Well, I do not suppose we can do it all to-day."



MANUM'S ARRANGEMENT TO PREVENT HORSES FROM BEING STUNG WHILE HAULING HONEY.

honey. Fred had this box made to suit his own notion, so that the clamps for shipping-crates just fit, both lengthwise and crosswise, which makes it very convenient for us. You may hand out two clamps more, which will just finish my load. Now, hand me that enamel-cloth covering to spread over the load to protect the sections from dust or rain, or the honey from the hot sun. There, now all is secure. You may now come out here; and as soon as I get seated, with reins in hand, you may remove the blankets and away I go. Good-by!

"How do you do, Will? I thought I would come to-day and assist you in removing all the clamps from off the hives. I believe it is four days since I was here and told you basswood had passed, is it not?"

"Yes, I think it is; and you were right, though I could not believe it; but the scale-hive has not gained a pound since that day; and as you told me not to take off any of the clamps for four or five days, and that you would come up and show me

"It is now 9 o'clock. Well, I think we can get every section in the honey-house by noon if we have good luck in getting the bees out of them. We will commence here at No. 1, and take them by course. You may look on while I go through this row, and then you can take a row yourself. There, now, watch me closely. I raise the cap, pull off the enamel cloth, smoke the bees a little to scare the queen down out of the sections, should she chance to be there; and while she may be doing so I go to the next hive and do by that as I have by No. 1, and so on through the row of 20 hives; and on my return to No. 1 I let down the caps to protect the uncovered sections from robber bees. I now raise the clamps from No. 1, set them on the ground edgewise, get the honey-board (brood-box cover) from under the stand, cover the brood-box, and take up the clamps and place them on the honey-board edgewise, and close the cap and go on to the next hive, and so on through the apiary. You again have the opportunity of enjoying the conven-

ience of having small or half-size clamps, for, as you see, if they were full size they could not rest on the brood-box and permit of the cap closing down tight. Why, I would not exchange these small clamps for full-sized clamps, if any one would give me the large ones free of charge; in fact, I should hardly know how to manage with them.

"There, now, we have the clamps all off, and there are 286 of them, which would be equal to 143 full-sized clamps, and we have been an hour and 20 minutes in removing them. We will now go to No. 1 and see what progress the bees have made in getting out of the sections. Well, they are doing very well, but we can help them some by opening the caps, as the escapes are so small it is rather slow work; and especially where the sections are not full of honey they have more bees in them. We will now go right through and raise the caps. You may take one row and 1 one. There, just raise each cap; and as you do so the bees will fly out in all directions, and make for the entrance. Leave the caps up until you go through the row, as that will give the bees more time to fly out; on your return, close them, and take another row, and so on through the apiary; then we can commence at No. 1 and repeat the operation the second or third time if necessary.

"Now, as the bees are out of nearly all the clamps we will carry them in. We can carry two at a time, and even three, where there are three on the hive. If you find a clamp that the bees do not seem to leave, it will indicate that the queen is in it, or that there is brood in one or more of the sections. In either case the bees will not leave, and you will have to place the clamp on the ground at the entrance, and remove the sections one by one, and shake the bees out of them in front of the hive, that the queen and bees may run in. It is not often by this method that we get the queens into the sections. So far this season I have found but one queen in the sections, and have found only three sections with brood in them.

"It is now half-past eleven, and the honey is all in except the two last rows. These you can carry in at your leisure, after the bees are out of them; so, now, I will go home. You see it is a short job to remove the sections from 100 hives, and get the bees out, when one understands how to do it, and with the right kind of hive and fixtures. You may now, as soon as you can, scrape the propolis off the top and bottom of the sections as they are in the clamps, so that they will not stick together when piled one over the other. You will have but a few days longer to remain here at the apiary, as you will be needed at home to assist in preparing the honey for market."

A. E. MANUM.

Bristol, Vermont.

Friend M., in behalf of our readers we tender you our sincere thanks for your very ingenious night-caps and night-gowns for the horses. The experience of a man who raises honey by the ton is certainly worth considering; and such appliances are usually the outcome of the wants and needs of a large business. Our readers will notice that you use the term "clamps" where we say "crates" for the box that holds the sections as they stand on the hive. I thought, a short time ago, that J. A. Green struck on the shortest method of getting the bees out of the boxes; but I do not know [but

you are ahead of him. I should not have supposed it possible to take the honey out from 100 hives between 9 and 12 o'clock. Your process of inducing the bees to come out of the sections and go down into the hive is indeed novel. I suppose that this, too, was the result of much experiment and much experience. When I worked with Dr. Miller I thought his system and plan could hardly be improved upon; but with the vivid explanation you give us of your arrangement, perhaps you are ahead. It may be, however, that you will get along better on your plan, and he will get along better on his; but for all that, it is extremely helpful to have it explained so we can understand it, just how each large honey-producer goes about to do his work.

WHERE SHALL WE HOLD THE NEXT NATIONAL BEE-KEEPERS' CONVENTION?

SHALL IT BE CHANGED FROM BRANTFORD, ONTARIO, TO BUFFALO, N. Y.?

The *Canadian Bee Journal* for Sept. 18 contained an editorial touching upon a point that I had been thinking of for some time. It reads as follows:

While at Buffalo we lost no opportunity of inviting our American friends to be with us at the coming international convention, to be held at Brantford in December, and we were encouraged by many promises to be present. We hope that our Canadian bee keepers will not forget to be present, and give our visitors such a welcome as they deserve. By the way, would it not be mere justice to place the holding of the next convention at Buffalo? The bee-keepers there would like it, and it will give Canadians a good chance of again being present. Besides, the Eastern States are deserving of it in their turn. Think of it, and come prepared to do the matter justice, in the best interest of the association.

This set the ball rolling; and, of course, in view of the foregoing considerations I could not help giving it another boost by writing the following letter to Dr. Mason, president of the Association, which will explain itself:

Friend Mason:—The last leading editorial in the *Canadian Bee Journal* for Sept. 18th strikes upon a point that I have been thinking of for a long time. The reason the next international convention was located at Brantford was because its secretary lived there, and could see to all the necessary business; but now I am informed he has moved away, and has been away for some time. The publication of the *Canadian Honey-Producer* has also been discontinued. Now, the question comes up, What attraction or what reason is there for having the convention in a small town in Canada, with nothing particularly to call it there now? The population of Brantford is only 13,000, and it is but 70 miles from Buffalo by rail. Why wouldn't it be a good scheme to change the convention to Buffalo, on the border of the two countries, in a city of 250,000 population, and in the vicinity where some of the best bee keepers in the world are located? We can surely get better rates of travel to Buffalo. Furthermore, there is a good live man by the name of O. L. Hershiser, with whom you are acquainted in that vicinity, and you may be sure he will leave no stone unturned to make the next international

a success so far as accommodations, rates of travel, etc., are concerned. Buffalo in the winter time is a place of great resort, on account of the Falls, and I am satisfied that a much larger attendance can be had by some outside attraction than by bees alone. At New Orleans there was the largest attendance at the international in its history; and the reason of it was the World's Exposition. We were interrupted a little, it is true, by those coming in and going out; but I would a great deal rather attend a convention where there is a large attendance with some interruptions than a small one-horse affair with an international name and no interruptions. Now, my better half and I, and, in fact, the whole of the Roots, want to see Niagara Falls in the winter. For the sake of the women, therefore, and for the sake of securing the presence of the New England and New York bee-keepers, exert your influence in favor of Buffalo, N. Y. The Canadians, according to the C. B. J., will be just as willing to attend. There is nothing at Brantford now to attract the convention, and there is no reason why it should be held there. I will write to Prof. Cook, and also to Mr. Newman, and the secretary, Mr. Holtermann. The latter, under existing circumstances, would, I think, just as soon have it at Buffalo as at Brantford. We changed our place of meeting last year, and why not change it now? Times and circumstances alter things very materially sometimes. Whatever you may think or say, remember that at Brantford there used to be a bee-journal and an editor of a bee-journal, and a secretary of the International Bee-keepers' Association. These attractions are now all gone. ERNEST R. ROOT.

Medina, Ohio, Sept. 24, 1889.

Hardly deeming it advisable yet to do any thing about it in print, I sent press copies of this letter to Prof. Cook, who originally proposed meeting at Brantford, and to the editor of the *American Bee Journal*, Mr. Newman. The following replies were received, all of which seconded the change. The first one is from the president, who writes as follows:

Friend Ernest:—Yes, I am in favor of a change of the place of meeting of the international convention, *provided* the Canucks so desire. Come to think about it, though, I don't think that it is any of their business, with the possible exception of Messrs. Jones and Holtermann. I believe they are the only members in Canada. But why not put it at Niagara Falls, on the Canadian side, then we should be right where we could all see the "beauty" without leaving the convention. I am willing to go anywhere my friends will allow; and if I am short in December, you'll not see me at the convention; but I *hope* to be there, and Mrs. Mason with me. A. B. MASON.

Auburndale, O., Oct. 1, 1889.

I think I should still prefer Buffalo as the place of meeting, to Niagara Falls itself. Buffalo, besides being centrally located, is so near and accessible to the Falls that those who so desire can visit them *after* the date of the convention. If, on the other hand, it were held at the Falls, there would be more or less interruptions *during* the session. In other words; Buffalo would be just near enough to be an attraction, and yet sufficiently removed from the roar of the great cataract to avoid interruptions.

Prof. A. J. Cook writes in this manner:

Dear Friend:—I think your reasons are good. We all only wish the best interests of the society. If they would be best served by changing to Buffalo, as seems likely, then I say Buffalo. I see no objection unless the secretary or the Canadian bee-keepers object. A. J. COOK.

Agricultural College, Mich., Sept. 30, 1889.

Brother Newman indorses it in this vigorous style:

Friend Root:—Yours is received, with press copy of letter to Dr. Mason, which I have read carefully. If the Canadians don't object seriously, I see no reason why the convention should not be at Buffalo. Our best convention was held at Detroit in 1885, on the border between the U. S. and Canada. The meeting at New Orleans was not one of the National Conventions. It was an *extra*, but it was good, and just as you say. Count me and the *American Bee Journal* in favor of Buffalo, and send me *advanced proofs* of matter for GLEANINGS about the change, and I will *second your motion*, and support it to the best of my ability. T. G. NEWMAN.

Chicago, Sept. 30, 1889.

Perhaps I should have sent a press copy to the secretary, R. F. Holtermann, now of Romney, Ontario, Can., but not then remembering his address it was overlooked until now. I feel quite sure he will indorse the change.

Now, then, you have the full facts before you. That we may ascertain the pleasure of the members of the Association, I suggest that those who favor the change, and also those who do not favor it, write directly to Thomas G. Newman & Son, No. 925 West Madison Street, Chicago Ill., recording their vote; and Messrs. Newman, after receiving them, can transmit them to the secretary of the society, who will act accordingly.

BEESTINGS; NOT ALWAYS A CURE FOR RHEUMATISM.

A GOOD TEST.

I SEE so many good writings in GLEANINGS that I can not begin to answer them; but as you said you want facts respecting bee-stings as a remedy for rheumatism, I will give my experience. I have handled bees for 32 years, and I have been troubled with rheumatism for 26 years, brought on by scarlet fever, and I have been stung I don't think I can guess how many times, and so I won't try to tell; but let me tell you one instance: This August a very large swarm of one-banded Italian black bees came out on a very hot afternoon, and clustered in the very top of a tall locust-tree. I climbed up, without any protection at all, and got almost in reach, with pocket-knife to cut the limb, and it split off with the weight of bees, and they scattered down the tree and down all over me, and up my shirt-sleeves, and up my trouser legs, and in my hair, and all commenced to sting. I came down that honey-locust in double quick. Rheumatism did not hurt me a bit for a few minutes; but when I got veil, gloves, and myself tied all around bee-proof, and smoker in one hand, rheumatism settled just as it was before; but a little kerosene took all the bee-stings out in a few minutes. But bee-stings are not as bad as mosqui-

toes on me. I have neighbors who get stung very often, and one sting on the face will swell the eyes almost shut and they still have rheumatism. The stings did help my rheumatism, though, until I got myself separated from the bees, but it is no better since than it was before.

BLUE HONEY; JAPANESE A BETTER HONEY-PLANT THAN SILVERHULL BUCKWHEAT.

Well, did you ever see blue honey? My bees gathered blue honey, I think honey-dew, off the green leaves. I saw the bees licking sweet dew in the morning on chestnut leaves. They all quit the buckwheat and went to licking the leaves. Japanese buckwheat is a little better than silverhull, as the blossoms are more in bunches, and don't dry out as quick as silverhull, and the bees work longer on the Japanese than on silverhull; but I don't think a bee gets a load on one any quicker than on the other; but the Japanese is the best buckwheat for the farmer to raise. It grows larger on poor soil, and stands up better on rich soil, and yields more per acre than any other grain in bulk. I don't think there is any more grain on a stalk than on a silverhull stalk; but Japanese grains are about four times as large as silverhull, and of course a bigger yield, and the stiff thick stalk on Japanese makes it more valuable for cutting and gathering.

SETH NELSON.

Wistar, Clinton Co., Pa., Sept. 8, 1889.

We should hardly hope that bee-stings would be a permanent remedy for rheumatism. If it answers in warding it off from season to season, we ought to be thankful.

THE CONE-CASE BEE-ESCAPE, AGAIN.

FRIEND GREEN PROPOSES A PLAN TO REDUCE THE LABOR OF EXTRACTING TO A MINIMUM.

WITH regard to the Reese bee-escape, I do not mean to say that it will invariably remove all the bees. Generally the super will be left entirely free of bees, but often there will be a few left—so few that they are not worth considering. I take the super into the honey-house, stand it on end on the floor, and in a few minutes all are gone. When there is any brood in the combs to be removed, I know of no way to get all the bees off except brushing, or the use of a very liberal amount of smoke. There should be no brood in comb honey, though, and perforated zinc will easily keep it out of extracting-combs. Just think how much easier and nicer this makes the production of extracted honey! No shaking or brushing of bees, with the attendant stinging and daubing! no brood to bother; and where there is no brood there is seldom pollen, so that the quality of the honey is not injured by either of these causes. Now, if I thought I could ripen the honey properly I would extract it before any of it was sealed, thus doing away with the uncapping. I would have one of your new-fangled extractors that would hold all the combs in one super and throw out all of the honey at one operation. Wouldn't that be getting down to business? In this way it would not be a difficult matter for one man to extract all the honey from quite a large apiary every day, if desirable, thus leaving the bees nothing to do but to gather nectar. Seriously, I have half a mind to try it.

I have corresponded with manufacturers of evap-

orators, but have not found any thing that seems to be what is wanted. It may be that honey would not be greatly injured by being evaporated in the common evaporator, such as is used in making maple syrup. Indeed, I think basswood honey might even be improved by it. White-clover honey is injured, and heart's-ease ruined, by boiling. I know there is a great deal of speculation in this, but I should like to see an apiary of, say, a hundred colonies run on this plan in a first-rate locality for basswood.

JAMES A. GREEN.

Dayton, Ill., Sept. 20, 1889.

CUCKOO-BEES.

PROF. COOK GIVES US SOME TRUTH THAT IS STRANGER THAN FICTION.

ON page 34 of my Bee-keeper's Guide I thus refer to these curious insects:

"Other bees—the numerous species of the genera *Nomada* and *Apathus* are the black sheep in the family *Apidae*. These tramps, already referred to, like the English cuckoo, and American cow blackbird, steal in upon the unwary, and, though all unbidden, lay their eggs; in this way appropriating food and lodging for their own yet unborn. Thus these insect vagabonds impose upon the unsuspecting foster-mothers in these violated homes, and these same foster-mothers show by their tender care of the merciless intruders that they are miserably fooled; for they guard and care for infant bees which, with age, will in turn practice this same nefarious trickery. The *apathus* species steal into the nests of *bombus*; the *nomada* species, which are small bees, often beautifully ringed, into the nests of the small black andrena."

Now, Mr. Editor, I am wondering if I should not have said in the last sentence, the *apathus* species steal into the nests of *bombus*, and into the hives of our honey-bees. Several times this summer I have received letters from Indiana bee-keepers, complaining of the presence in their hives of black bees, often in considerable numbers. Several have written that the black bees were not honey-bees. I have written repeatedly for the bees, and now comes a box with two bees. I wish there had been ten or a dozen (or, better, 50), wrapped in cotton, so they could not have been injured; and the following letter from Mr. Perry Moore, Hortonsville, Indiana: "I send you by to-day's mail two insects that I found in a colony of bees. The bees are hybrids, and in good condition. These bees have not been without a good laying queen for more than a year. There are one hundred or more of these bees in this colony. Although I have kept bees for the past twelve years I never saw any thing like this before."

Now, Mr. Editor, this is interesting. I find this to be a species of *apathus*. It is about the size of a worker, but resembles more the bumble-bee. Like all bees of this kind—cuckoo-bees—there are no pollen-baskets. Its thieving habits make such organs unnecessary. If we, by hook or crook, get others to do our work, then we need no tools. Heretofore we had not supposed that these insect-thieves pilfered from our hive-bees; but now our suspicion is fully aroused. Note that Mr. Moore says that there are one hundred or so in the colony. Does this not look as if these bees were reared in

this hive—the brood being cared for by the honey-bees? This is very interesting practically, no less than scientifically. I have written to Mr. Moore to examine at once to see if these bees were being bred in the hive. There are two ways to find out. First, study the larvæ to see if some are different from the others. This might be a long, tedious, and difficult investigation. The other is to watch for the cuckoo-bees just as they come forth from the cells. Some such ought to be seen, and they would doubtless look much like young honey-bees, smaller and lighter colored than the older bees. I hope others will also be on the lookout for these bees. Very likely these cuckoo-bees will winter right in the hive with the other bees. To find out their habits in this respect will also be very interesting. I hope Mr. Moore and others will try to find out the truth in the matter. If I can get some of these bees I will try to see if I can introduce them here, that I may study their life-history.

Agricultural College, Mich.

A. J. Cook.

Well, well, old friend, you have indeed got hold of something, if it be true, that might well astonish the whole of us; but either you have not told us all, or else you have not considered all there is to it. Were those eggs surreptitiously placed in the worker-cells by a queen cuckoo-bee, or are the workers all queens? What enemy have we to fight—the single insect that eludes the sentinels, and lays some eggs in worker-cells, or a whole tribe of them? If the 100 or more are going to lay eggs, how long will they stay in the hive before they start out on their nefarious business? You suggest that they may stay over winter. Now, if they do, what then?

ROBBER-BEES.

AN EXPERIENCE ON A LARGE SCALE.

PREVIOUS to coming here to Cuba I had had comparatively little knowledge and little experience in this line of bee-keeping; but the past two summers have been spent in an almost constant contest with robber-bees; and possibly telling my experience may be a little help to some who, from any reason whatever, may be placed similarly to myself. Of course, the true remedy is never to handle bees so they will get started, which can always be done in our Northern States, and almost always in the South; but sometimes experiments are being made in a new country, as we are doing here, or a bad season occurs in California, such as did occur there a few years ago, when whole apiaries had to be fed to save them. In such instances the best way to control robbers is exactly what we want to know. Here where, partly from a mistaken idea and partly for experimental purposes, we are trying to keep 500 colonies in a field, which during four or five of the hottest months of the year, gives forage for not over 200 colonies, we have to practice wholesale feeding, and plenty of robber-bees is the natural result. Of course, the right way is to keep bees, here and elsewhere, so no wholesale feeding will be necessary, during ordinary seasons at least, and we now know how that can be done here in Cuba.

In June of last year I suddenly found that at least a quarter of our 430 colonies had less than a pound of honey to the colony, some of them not

over an ounce, while the other three quarters would average not over 3 lbs. each, with no arrangements for feeding on hand, or that could be procured in less than a month of time. Fortunately, for this purpose at least, our hives were of the fast-bottom-board type, and I could feed in the hives. About two-thirds of the colonies required from one to four feeds each during the summer. I had fed but a few hundred pounds of honey, when I saw that it would be impossible to feed honey that way; so we changed to sugar syrup as a food. The smell of this doesn't seem to excite the robbers so much as honey does. With this we managed to get through the season, although with great difficulty. It was the most disagreeable season's work I ever did with bees, except this summer's. Last spring we obtained 230 feeders, similar to the modified Miller feeders you make. This year we had to commence feeding by the middle of May, nearly a month earlier than last year, and have had to feed nearly three-fourths of our 500 colonies.

We have learned a number of things in connection with this work. Some of them are: 1. That what would be a very light task indeed, requiring almost no skill at all, to feed 100 or even 200 colonies, is an almost impossible task with 500 colonies. 2. That we must feed as few times as possible, therefore must feed as much at a time as the bees are certain to take up during the night. 3. That robbers are much worse around a hive which has feed left in the feeders. 4. That each time we feed, unless we wait longer between feeds than we could do, the robbers would be worse than the previous time, showing clearly how susceptible bees are to being educated, in one direction at least. 5. That honey fed in the bottom of hives attracts robbers much worse than if given in feeders on the top of combs. 6. That mild-flavored honey attracts robbers much less than does strong-flavored honey. There is no need of mentioning the old well-known facts about feeding after sundown, and about Italians protecting stores better than black bees do, etc.

I usually practice feeding from 20 to 30 colonies at a time, and give 5 or 6 pounds at a feed to each colony. The first three or four times feeding, no precautions whatever were needed—not even to contract the entrances. The next two or three times, contracting the entrances was sufficient; then it became necessary to entirely close the entrances of all the weaker colonies, which was done the last thing before retiring at night. The entrances were kept closed until after the first charge of the robbers was over in the morning, usually until nine or ten o'clock. Soon, this was not sufficient, and something else had to be done. I tried using wire-cloth covers on the hives, but that was a failure, just as you describe in your A B C book. I then obtained some strips of glass, 3 x 12 inches, and leaned them over the entrances. These were a material help, as the robbers had to travel several inches under the glass before reaching the hive entrances, thus giving the defenders a great advantage. But in time the robbers learned how to manage these. Wet grass over the entrances was of little account. About this time it looked as though I had two horns of a dilemma to choose between. One was, to allow a few score of colonies to die of starvation, or to feed and have them destroyed by robbers. Had the apiary been my own, I should have decreased the number of colonies at least a hundred last spring, instead of increasing that many, as we

did, or I should have divided what we had into two or more apiaries, thus entirely preventing this condition of things; but, whether fortunately or otherwise, time only will prove. I was, for the first time in my life, obliged to follow another's judgment of proper methods in the apiary, and to do the best I could.

The new revision of Langstroth's book helped us out of this trouble by its suggestion of the use of carbolic acid, which proved the most satisfactory of any thing I had tried, and I have so far not lost a single colony by starvation. It is used very dilute, less than a tablespoonful each of carbolic acid and glycerine in a 4 oz. bottle of water, sprayed as much as needed on a bunch of dried grass placed at the entrance to any hive robbers may be working at. It needs to be used carefully to prevent injury to the colony being robbed. By persistent watchfulness and care, and the use of every thing I could think of, I have succeeded in bringing the apiary intact through over four months of steady feeding; but it has been by far the most unpleasant work I have ever done with bees, and one I hope never to repeat.

O. O. POPPLETON.

Havana, Cuba, Sept. 14, 1889.

Thanks for the account of your experience. Some years, we are aware, are a great deal worse for robbers than others. Two years ago this summer, you will remember, perhaps, we stated in the department of Our Own Apiary that robbers were as bad as we had ever seen them, and that most of the well-known methods (to say nothing of prevention) proved a failure. At the time, we used a pane of glass. As you say, this had only a temporary effect, for the robbers soon learned the trick of going under the glass. We also used a weak solution of carbolic acid, the same being sprayed in front of the entrance, or wherever the robbers concentrated their attacks (see GLEANINGS for 1887, p. 671). For a while this seemed to work very successfully; but the strong scent of the solution seemed to disorganize the defenders of the home as well as the robbers, and in due time the latter got the advantage. They, too, got so hardened and defiant that they would go through thick and thin. We had some 300 colonies, and there was hardly a pound—yes, hardly an ounce, in their hives. The days were hot and dry, and we can appreciate somewhat your situation.

In addition to what Ernest has said in the above, I wish to add that I have had more or less experience in regard to every one of the six points you make. I wish especially to call attention to the fact that robbers will hang around a hive, and force an entrance, very much worse while there is feed in the feeders than they will after the feed has been taken down and placed in the combs. I became so well convinced of this that I was in the habit of deciding when the feed was all out of the feeder by the movements of the robbers in front of the hive. One explanation for it is this: That when bees have their attention all taken up with the contents of a large feeder they seem to forget to keep the usual sentinels around the entrance. When I fed a barrel of sugar to a single colony, in a few days they got so that they seemed to care very little whether

robbers got in or not. Honey had been poured into their hive day after day to such an extent that they could not believe but that it was plentiful everywhere. I, like yourself, soon determined that each colony must have no more than it would take up before daylight in the morning. I also discovered that basswood honey, with its strong aroma, was ever so much worse to set the apiary in a craze than any other kind. In fact, after they had once got a taste of strong basswood honey not fully ripened, during hot weather in August, it seemed as if they would bite through inch boards to get at it. They got under the door of the honey-house, found cracks between the siding, went down the chimney, and came up through the ventilator, just to get that much-coveted basswood honey. I have been where I saw just the two horns of the dilemma that you speak of; and at such a time, woe to the hive that is without queen or brood.

A LOUISIANA APIARY.

THE YUCCA GRANDEFLORA.

I MAIL you to-day a photo of a grand flower now in bloom in a part of my bee-yard. It is the yucca grandeflora. It stands ten feet in the body, capped by this immense ball of white blossoms, each as large as a teacup, and at least 500 cups to the head. The cups have been filled with bees from the opening till the present time. My severe loss, a few years ago, in the apiary, from Paris green, retarded my work very much; but I am again catching up, and have to-day 111 stands of bees in splendid condition. At one time I became very much discouraged, fearing that, if the planters had to continue the use of Paris green year after year, I might as well go out of the business; but I believe now, seeing the result of last year's experience, that it is a rare thing for the bees to visit plants to which Paris green has been applied. Last year it was used on the cotton to exterminate the cotton-worm, in the same manner and time as the preceding year, on thousands of acres in our vicinity, and yet I lost no bees last year, while the year before I saved only 33 out of 118.

I have been living in our present locality only eight years. When we first came here it was a wilderness, a Louisiana swamp; to-day I have around me one of the nicest little orchards of apples, pears, figs, and plums, in the country. The pomegranates you can see to the left of the picture. To the right of the picture is a row of basswoods which I have with great difficulty induced to grow here, having to shade them till they were three years old. To GLEANINGS I owe most of my knowledge. I have been a regular subscriber since 1878. How many older ones have you on your list? I look forward to the coming of each number now as eagerly as I did the first that were published eleven years ago.

I have had my ups and downs, like every other bee-keeper that has lived, and my "bee fever" has never cooled for an instant; nor can I hear that shrill tattoo that sounds "a swarm out" without starting with all the excitement of the first stages of the disease. Outside of the profit (and at times

they have well repaid me) I love the study, and have taught it to my three boys, who are now old enough to do the work, almost, with me.

I have always used the Langstroth hive, on Mr. Winder's pattern, which takes the Simplicity frames.

One other item I should like to mention is my experience with the Chapman honey-plant. We were sent seed from the Agricultural Dept., Washington, last year, and planted it in April. They did not bloom till this spring, and it may be that there is so much more to gather honey from while they are blooming that the bees have neglected them entirely. I shall plant again, and try another season. We extracted 60 lbs. this morning from a hive that had already yielded 75 lbs. this spring.

Monroe, La., July 20, 1889. ST. J. T. MOORE.

Your photo was received, and we should have been very glad to present it to our readers in the shape of an engraving; but some parts of the picture were so dim and out of focus that it would be impracticable to engrave it by our special process. You have given us a very good pen-picture, however.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

LARD CANS: WILL THEY BE SUITABLE FOR HONEY?

Please inform me whether round tin cans, such as lard is shipped in (holding 50 lbs. of lard), would be suitable to put extracted honey in, to be left in the honey-house for three or four months. I can get these cans for about 20 cts. each. They are as good as new, having been used only once. Do you consider them heavy enough to hold honey?

AMOS G. ADDISON.

Huntington, Fla., Sept. 10, 1889.

Any kind of tin cans are suitable for honey; but be sure you have them cleansed so that there is not any lardy smell about them. If I am correct, such cases as you mention have been used quite extensively already. You can decide only by actual test as to whether they are strong enough. They will probably need to be crated, to prevent injury in shipping, and a round can is much more inconvenient to crate than a square one. This is the principal reason why we have adopted the square can instead of the round.

BEES TOO NEAR THE HIGHWAY: SERIOUS RESULTS OF SUCH PROXIMITY.

We have had an occurrence in our county that is well calculated to set bee-keepers thinking. A bee-keeper has been keeping his bees very close to the highway, and a few days since they stung a horse to death, badly stung another one, and several people, thus causing considerable damage and annoyance. Now, there is considerable prejudice against our business, and we are not altogether blameless; for in looking over bee-yards we find a great many bees just as close to public roads as fences will allow, and are therefore a public nuisance, and dangerous as well. I hope GLEANINGS will give this matter attention, to the end that careless bee-keepers have their attention called to this matter, so that no more prejudice arise against our business.

Because we love our business is no reason to suppose our neighbor wishes to have his property damaged, or be stung himself. Move the bees back.

C. A. DEAN.

Auburn, Pa., Sept. 2, 1889.

GETTING PROPOLIS OFF FROM GLOVES.

Please tell your readers what will take propolis off rubber gloves, or how to get it off. I am sure they would like to know.

MRS. H. J. PROPER.

Franklin Corners, Pa., Sept. 19, 1889.

My good friend, we can not answer you from actual experience, for no one uses rubber gloves in our apiary, that I know of; and although we sell hundreds of dollars' worth of these gloves, it has always seemed to me that it was a mistaken notion that they were needed in handling bees. The solvent for propolis is benzine; but whether it will resolve the rubber also, can be ascertained by experiment alone.

BEE-STINGS A REMEDY FOR RHEUMATISM.

I commenced in 1887, with one stand, and now have 32. Although the season has been very poor, I have been able to get 600 lbs. extracted and 100 lbs. comb honey, most of it raspberry and white clover, so far this season. The fall flow has commenced now, and prospects are good. I think I shall be able to get more this fall than last spring. The greatest benefit received from the bees, which I hope you will give through GLEANINGS, was being cured of the rheumatism. I had the white swelling when 14 years old; and although it was cured I had been bothered ever since a great deal with rheumatism, until I commenced working with bees. I have not had a single hard spell since. I have felt several times as if I were going to have a spell; but a sting or two seemed to relieve it immediately.

C. E. LAYMAN.

Troutville Station, Va., Sept. 13, 1889.

BEE-STINGS NOT A REMEDY FOR RHEUMATISM.

I agree with Mrs. John Burr, of Braceville, Ill., that bee-stings are no relief for rheumatism. Five years ago, as I began bee-keeping I suffered from rheumatism about as badly as a man could, and I have it yet, although not so bad this summer; but last year I was disabled for six months. But as I began bee-keeping, I was told by several parties, "Now let the bees sting you as much as they have a mind to, for that will cure you." A rather bold remedy, is it not? Well, I confess I was stung enough for the entire season. My hands were swollen to double their natural size, and sometimes the face also; but it did not affect the rheumatism; but, strange as it is, since the first season, the bees may sting me ever so bad and it never swells in the least. I believe the reason for bee-stings and many other remedies recommended for rheumatism, is because it will sometimes leave a person all at once, in a change of weather or even a change of wind; then when the sufferer has been using something he is ready to say it cured him. I have been fooled many a time the same way, although I am not very apt to jump at conclusions. But I have many a time thought I had something that cured me, only to find, when the trouble returned, that it had no effect upon it at all.

JULIUS JOHANNSEN.

Port Clinton, O., Sept. 9, 1889.

You make a good point, my friend, where you mention that rheumatism and like ail-

ments are almost constantly coming and going; and the fact that they often disappear very suddenly, without any apparent cause, should lead us to be slow in deciding that it was bee-stings or any sort of medicine that produced the result.

GREAT IS TRUTH, AND WILL PREVAIL.

I inclose a clipping from the *Farm, Field, and Stockman*, of Chicago, Sept. 28. I am happy to see that there are some editors that are ready to stand by the truth in this matter, instead of gathering up the slander that has been taking the rounds of the press; and I feel that it is our duty to express our thanks to all such, as much as it is our duty to express our disgust and indignation to all such as are ready to publish lies and slander concerning our honest and reputable industry.

Bluffton, Mo., Oct. 1, 1889.

S. E. MILLER.

The idea that comb honey is ever manufactured is as absurd as it is false, and has been refuted so many times that further denial seems superfluous, and yet we occasionally see a newspaper with an article on glucose and paraffine, and the American Encyclopedia contains a rehash of the same old slander. The fools aren't all dead yet.

The tide is changed. We have now good live substantial periodicals, outside of bee-journals, that are championing the cause of bee-keepers. In the name of bee-keepers we desire to thank the *Farm, Field, and Stockman*, and we hope they will continue to use their large influence in contradicting the manufactured-comb-honey nonsense. Let bee-keepers also follow up and refute every such slander upon our good people.

ANOTHER RED-CLOVER STRAIN.

The honey season in spring was short, but we had considerable clover honey. I think I must have a "red-clover" strain too. The progeny of my first queen (a leather-colored one, and the best I ever had), about 8 colonies of Italians and hybrids, went $3\frac{1}{2}$ miles to a 20 acre field, and these same bees have stored *sweet* honey the past 8 weeks, while the rest have worked on bitterweed. Since July, the sources have seemed to be peaches and bitterweed. Goldenrod and aster are now yielding some very nice honey. There has been some swarming, but they are to-day killing drones. I extracted last week from 5 to 7 frames per colony from my best strains, weighing as many pounds per frame, leaving lower story full.

Pontotoc, Miss.

C. P. COFFIN.

You have touched upon one valuable trait of the Italians. They are much more disposed to gather *sweet* honey, as you term it, than either blacks or hybrids; and I have seen this state of affairs so many times that I think it can not be a mistake. Now, did any one ever know blacks or hybrids to gather good honey while the Italians were working on an inferior quality from weeds?

A BOCUS HONEY-BOOK.

I will send you a new method of bee-keeping which I gave \$1 for, to learn something new; but I got sold.

NELSON HANER.

Cedar Creek, Wis., Aug. 8, 1889.

With the above comes a little pamphlet of 20 pages, copyrighted by Louis Craux Mudge (pronounced *Crow Much*, we presume), published in "Appleton," no State given, 1888. Now, some of you may insist that a book of

only 20 pages may be worth a dollar, after all. Perhaps it may be, but I have never seen such a one. They are usually made up about as this book is. We will take three paragraphs for a sample.

FOUNDATION COMB.—A great many people pay out money foolishly for foundation comb, when it can be made for the mere price of the wax and at home. I know full well the artificial cells are all re-modeled, and a plain surface is the best for bees to start with. Take pure beeswax, melt and pour it in flat pans. Make it about $\frac{1}{8}$ inch thick. Cut it in squares to fit frames. Take a fine needle and thread, and sew it in frames. A few stitches will do. The bees will soon fasten the comb to suit themselves. The above will save you many a dollar.

Friend Mudge has also a bee-compound. I have not learned how much a bottle costs; but if used without his druggist's prescription he intimates that it will cost not less than \$500, for on the last page we read:

A reward of \$500 will be paid for the conviction of any one using the above without my permission.

Here is another item, in regard to extracted honey:

EXTRACTED HONEY.

Uncap the cells with a warm knife, put the comb in a sheet, hang it up in a warm room where there are no flies, and allow it to drip in a pan; stir the comb at intervals. When honey makes a person sick, boil and skim it before using. This will prevent it.

It is very fortunate that friend Mudge inserted the two last sentences; for *such* extracted honey would be quite apt to make almost anybody *sick*.

"PROLIFICKS."

I wish to say that I admire GLEANINGS, and the free-hearted manner in which you write about manners and things. I was about as much shocked when I came here from York State to see the manner the Sabbath was kept as you were in Milwaukee by the girls playing ball.

I found a swarm in the wood. "Prolificks" I call them. They are a large bee, and work on red clover. I had two swarms this spring from them. I now have 17 in all, from those two. No. 1 cast 4 swarms. The first of those 4 cast four more; one of those last four cast one swarm, and this last one sent off another—eleven in all. I never saw the like before.

Snow, Wis., Sept. 30, 1889.

GEORGE PECK.

WHY DIDN'T THE BEES TAKE THE FEED?

I undertook to feed back some of my uncapped honey about the first week in September. The bees made a rush for it, and would cluster thickly upon the combs, but would carry none of the honey into the hive. They have plenty of brood in all stages, also some uncapped honey in their hive. Why do they refuse to take the proffered feed?

Gordon, O., Sept. 9, 1889.

F. A. MYERS.

Without more particulars it is a hard matter for us to say why the bees did not carry any of the honey into their hives. If you undertook to feed when honey was coming in from the fields, of course the bees would pay little or no attention to it. We presume you put the combs in the open air, although you do not say so directly. If you set them in upper stories, very likely the bees decided the honey was well enough as it was, for it was their property already. In such cases they often refuse to move it into combs in the brood-nest below, unless only a small hole is

left open between the two stories. Even then they will not always do it. I have also seen honey of such poor quality that the bees would make a start on it and back out.

IN FAVOR OF CLIPPING, AND WHY; SEE QUESTION 138, PAGE 638.

No, we would rather lose ten queens than one swarm at the beginning of the surplus-honey season, as we lost two this year. They both came out at the same time. One had a clipped queen. The other had a young queen, unclipped. They both united and went elsewhere without even clustering, when, if both queens had been clipped, we would not have lost them. Again, a friend had a swarm come out and cluster on an old apple-tree limb, 25 feet from the ground, where no one could get; but the queen was clipped, and the swarm soon returned, and both queen and bees were saved without much trouble. PARSHALL & GROVER.

Cooperstown, N. Y., Sept. 4, 1889.

We grant all you say. I have had like experience; but we also had much trouble and vexation at other times, because our queens were clipped and could not fly.

SWEET CLOVER; FACTS WANTED.

I should like to know something definite about sweet clover as a honey-plant. I think it is the best honey-plant we have. Can some one, living where it is abundant, give us some facts in regard to it—not guess so, but facts? How much will it produce per acre? and how much will give a surplus with a given number of colonies, say 50 or 100? Sweet clover has been advocated as a honey-plant for a long time; and if it is as valuable as it appears to be, some one ought to be able to give us some valuable facts in regard to it. I have saved several bushels of the seed. I have no idea what I shall do with it. I did so because I think it is valuable as a honey-plant. I should like to sow 20 acres, and I am not certain but it will pay as well as any crop I can raise, but I do not know this. I wish I did. Who can tell me? My neighbors find fault about its growing along the roadside. I don't like to annoy my neighbors. I would rather raise it on my own land, provided I could make it pay to do so.

H. R. BOARDMAN.

East Townsend, O., Sept. 13, 1889.

It is a very hard matter to get definite facts in regard to any honey-plant. I suppose you noticed my reports of the sweet clover in the vicinity of Salt Lake City. In this case, however, no one could very well estimate the number of acres. There may have been hundreds; therefore one could not well say how much an acre would yield. I can say this, however, that they get tons of honey, of a quality equal to any thing known, allowing me to judge. Now, if you will excuse me I think you will have very great difficulty in getting a good stand on, say, 20 acres; and I am furthermore quite sure that it would not pay the cost, even if you did. Prof. Cook has just made some experiments on a large scale, in raising plants specially for honey. The State bears the expense, so he can afford it; but I am quite sure he has not made it pay. In Salt Lake City they can reclaim saleratus lots, as they call them, by getting a strong growth of sweet clover, and then plowing it under; therefore it becomes

an object with them. Possibly it does better on the saleratus or alkali soils of the desert.

SPIDER-PLANT IN ITS NATIVE HOME.

The spider-plant abounds here in great quantities. Acres and acres of it are here in the Arkansas Valley, and it grows right up to this city. It seems to me any quantity of seed could be procured here. I have no bees yet, but am bound to try them. How do you gather the seed of the spider-plant, and what is the demand for it? No mistake about it, it is the genuine spider-plant. I have grown it in Ohio, and am well acquainted with it. Lots of alfalfa clover here. I think bees ought to do well here.

Larned, Kan., Oct. 4, 1889.

A. H. DUFF.

Thanks, friend D. During my California trip I saw both spider-plant and Rocky Mountain bee-plant growing wild in different localities, though not in any great quantity. Since Samuel Wilson's extravagant puff of the Rocky Mountain bee-plant, there has been an unusual inquiry for the seed. The seed of both these plants is gathered by grasping the pods when they are ripe enough so as to begin to shell out of their own accord. Strip them into a tin pan or some similar utensil, then dry them for a few hours in the sun, when they are ready to bag up and put away. In a few days you can get a new supply, and so on. The seed continues to ripen for a period of weeks or even months, so that you can not well cut and thrash it as we do most other seeds. It can, however, be gathered out quite rapidly after one has become an expert in stripping the pods. Hold your pan under them, for many of them shell out as soon as they are touched. The seed usually retails at about 20 cts. an ounce, or \$2 a pound. It is used, however, only by bee-keepers.

GLASS-BLOWERS ON A STRIKE; A BLOCKADE ON MUTH JARS.

The glass-blowers of our factory are on a strike. Our friends were getting our order filled by another factory, whose blowers found it out, and refused to work also. I have since sent my order direct to this second factory; and if those blowers please, we shall have here 60 gross of jars by the end of this week. I am very sorry, but what shall we do about it? We have orders on hand for more than 100 gross, and shall fill them just as fast as we can do so.

CHAS. F. MUTH & SON.

Cincinnati, Sept. 18, 1889.

GALLBERRY HONEY AND ITS QUALITY.

I send you to-day by mail a small sample of honey made from the bloom of what we call "gallberry." It is a small bush, from 2 to 5 feet high, which grows profusely all over the southern part of the Gulf States, and is regarded somewhat as a nuisance, or at best a useless shrub. It has a very small white flower, which yields this kind of honey in great abundance while in bloom, which is about 20 days. With 26 hives I secured about 175 gallons of honey like the sample, which has netted me about \$1.00 per gallon, or 9 cents per lb. I send the sample to get your opinion of the honey as compared with the best Northern honey.

Moss Point, Miss., Sept. 13, 1889. M. M. EVANS.

In body and color it will compare favorably with any of the Northern honey. In

flavor it is very nearly equal to the best clover; perhaps some judges would call it fully equal. It ought to compete with any honey.

REPORTS ENCOURAGING.

FROM 4 TO 10, AND 218 LBS. OF COMB HONEY.

From four stocks I have increased to ten, and taken 218 lbs. comb honey. I believe all are in good condition to winter.

A. A. LEWIS.

Waterbury, Vt., Sept. 23, 1889.

FROM 61 TO 103, AND 7000 LBS. HONEY.

The three pecks of Japanese buckwheat did well. We sowed it on an acre and a half, and got 40 bushels. We started in the spring with 61 colonies; increased to 103, and have about 5000 comb and 2000 extracted. There was hardly any fall honey, on account of dry weather.

C. J. SCHAFER.

Eddyville, Iowa.

FROM 30 TO 73, AND 5800 LBS. OF SECTION HONEY.

My bees have done well. I had 30 colonies in the spring. I now have 73, and 5800 pounds of one-pound section honey—an average of 193¼ pounds per colony, spring count. The queen I got of you was a good one. I have some of her daughters that have made 200 pounds of one-pound section honey since they swarmed. One colony gained 19¼ pounds in one day, the 13th of June. We had plenty of rain, and the clover looks fine—better than last year at this time. Put me down as one of those lucky bee-men. Score one for the Italian bees. They are good enough for me—any way, the kind you sent me.

JOHN BLODGET.

Empire Prairie, Mo., Sept. 26, 1889.

I do not remember to have had testimony from the queens we have sold before, in just the way you put it; but it strikes me as being a sensible way—that is, some of the daughters of the queen you bought of us have produced colonies giving 200 lbs. of comb honey, after they swarmed. Nineteen and one-fourth pounds a day is tremendous. Now, please do not get the opinion that we want to boast of our stock of Italians, nor to claim that they are better than other stock; for, in fact, we have done nothing to make them better, except to make frequent importations every season, of queens direct from Italy. Of course, our agent there is instructed to give us good strong healthy queens, and no other.

REPORTS DISCOURAGING.

ALMOST THOROUGHLY DISCOURAGED.

You may discontinue my GLEANINGS, and put me in Blasted Hopes, as I had 80 colonies this spring and have not got one pound of honey. I do not think that the bees will get enough to live on this winter. I have been a subscriber to GLEANINGS for 15 years, and I suppose I shall be lost without it; but I am almost thoroughly discouraged, as there has not been a good honey year here for about six years.

JOHN BAXTER.

Crothersville, Ind., Sept. 20, 1889.

It is a little singular that you have had six consecutive bad years. Have none of your neighbors around you had good crops

of honey in all this time? One might be tempted to decide that your locality is a poor one; yet I am inclined to think, from reports, that every part of Indiana does, at least occasionally, give good honey-yields. Perhaps your very next season, after you give up the business, may be one that would have made amends for all the poor ones. If you examine our column of Reports Encouraging, you will see that great yields are occasionally reported where there has been a dearth of honey for perhaps several seasons. Before you give up, however, be sure to go around and visit your neighbors, and see whether there are not some who get good yields in spite of poor seasons. This is one of the good things about conventions. We are liable to fall into errors in thinking as well as errors in management; and a comparison with successful men will often show us where we have missed it.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 146.—a. Do you propose to sell your honey on commission this year? b. If not, will you sell it by peddling or otherwise?

a. No; b. In our home market. A. J. COOK.

a. Yes, I always do when I have any.

GEO. GRIMM.

No. I have an outlet for my honey, which I prefer.

O. O. POPPLETON.

By commission, when I know the commission merchant is reliable.

P. L. VIALLO.

Yes, unless I get a chance to sell it at wholesale.

G. M. DOOLITTLE.

a. No; b. We sell to dealers for cash, and to bakers for cash. I don't do much with commission men.

E. FRANCE.

a. No. b. To the jobber or the retailer, or wherever I can get the most for it, and get the cash with the least trouble.

H. R. BOARDMAN.

a. I have not decided yet. I should prefer to sell direct to jobbers, and save commission. b. Peddling is too expensive in my locality.

A. E. MANUM.

a. I will sell in part on commission. b. I have worked up some trade in Texas and elsewhere, where I sell considerable direct to merchants.

R. WILKIN.

a. I prefer to sell for cash. b. I may have some peddled; but the only peddling I ever had done, the peddler kept all of the money but wanted more honey.

P. H. ELWOOD.

a. No, sir. b. Yes, sir; that is, mostly "otherwise." Some customers in Toledo, and our groceries here, get away with all my surplus, and sometimes more.

A. B. MASON.

We have for 20 years sold it by several methods. We ship on commission a little. We sell largely on orders. We sold a little by hiring peddlers, and we think this method very good.

DADANT & SON.

a. "Not if the court knows itself." b. If I have honey to sell in any considerable quantity, which is not a certainty yet, I will endeavor to find a home market, in various ways. MRS. L. HARRISON.

a. I prefer to sell my honey rather than to send it to commission men. I will take the best market I can find. I shipped last year to five different States before I closed out my crop of 32,000 lbs. S. I. FREEBORN.

I should always sell to him who would pay me the best price. Peddling is a business, and there are not many good honey-peddlers. But it will pay everybody to retail his goods if he can. C. F. MUTH.

a. I have not decided. b. If I should get a large yield, nothing would please me better than to sell it all in the home market by peddling, and then crow over it. Should I get a light yield, I will peddle any way, but you will not hear the crow. RAMBLER.

That depends on how much I get. If we have as large a crop as I hope for, I may be obliged to send some off to be sold on commission. I prefer to sell to dealers, keeping them constantly supplied, but with only a small stock, and never asking them for pay until they have sold the honey. I have never tried peddling, and do not think I shall. J. A. GREEN.

a. Not if I can help it. There is such a terrible long tail to the commission cat that I do not like it. I like to realize upon the results of my labor some time during the present generation, while I still have the cheerful habit of residing in this world. b. I will try to sell it out and out for cash to some responsible dealer who buys that way. JAMES HEDDON.

a. I can not say. b. I don't think I'm a born peddler, so I shall not try that, but I'll probably try to supply the groceries so far as they care to be supplied in my home market; and then it will depend on prices to be had, whether I sell in a lump to some large dealer at a distance, or send to one or more cities on commission. C. C. MILLER.

As my apiary is within an hour's drive of a large city, I have never shipped honey on commission. I do not propose to begin A. D. 1889. I take pains to encourage, and have built up a considerable custom of persons who call and buy. I think nearly every apiarist could do so if he went at it right. This is the best way, so far as it will go. Next establish regular routes and take honey to the doors of farmers and village people every six weeks or so. City people are worried by an excess of peddlers, and do not bite well. Next try the city groceries. If they will take your crop on terms satisfactory, very well; if not, as a last resort previous to sending to distant commission men, peddle in the city. E. E. HASTY.

The general impression seems to be in favor of selling honey outright, or attending to sales personally, in some way or other. I suppose one might get accustomed to the business of furnishing commission men so as to find it perhaps the easiest way of disposing of a very large crop; but the commission man should be an expert in handling honey, and the honey-producer should also be thoroughly posted, so as to be able to give the commission man reasonable directions in regard to the disposal.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: Sheer Off, Silver Keys, The Giant-Killer; or The Roby Family, Rescued from Egypt, Pigrin's Progress, and Ten Nights in a Bar-Room. We have also Our Homes, Part I., and Our Homes, Part II. Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

MORE ABOUT WOLVES, BEARS, AND OTHER WILD ANIMALS.

WRITTEN FOR THE JUVENILES BY UNCLE AMOS.

WHILE riding out with friend France, over the hills, we came to a point where some wonderful mounds rose clear up above the surrounding country. I called them mountains, and I feel like sticking to it still. They are really small mountains, and their height is so great that, when I started on my trip to Richland County, I could catch glimpses of them until we were twenty or thirty miles away. The railway runs out quite near one of them, and circles around it, so you can get a glimpse of it on all sides. These mounds are pretty near the center of the State of Wisconsin, if I am correct. Well, while we were riding along I kept watching the hills, rocks, and the streams, and pretty soon I told friend France that many of the rocks looked much like those in the region of Mammoth Cave, and I said I thought there must be caverns in those hills. But he declared there were no caves nor caverns, nor any thing of the sort. But I did not quite give up. Pretty soon we started to go over toward one of his apiaries. We had to go there crosslots. In the middle of a great big field my eye caught sight of a hole in the ground, as if a great big well had some time or other caved in there. Said I:

"Look here, friend France; I want you to tell me what that hole is doing out here in this lot."

"Why," said he, "that is what we call a chimney."

"But what is a chimney doing out here? Is not that the mouth of a cavern away down under the ground? When it rains does not the rain water pour right in it and go out of sight?"

He admitted that it did, but he did not believe there was any cave. My friend, if you ever see the water, after a rain, pouring into a hole in the ground, and disappearing, you may be sure there is a cavern down there; and if it were anywhere in my vi-

cinity I would dig down and see where the water went to, and may be have a cave or cavern of my own. He finally acknowledged that there were places in their vicinity where the water poured into these chimney-holes and came out on the banks of a river half a mile away. He said he knew it was the same water, on account of the color of the soil that washed into the hole and then came out as stated. Well, this made the study of Grant County of very much more interest to me during my whole visit. I wonder how many of my juvenile friends read what I said about the "machinery of the universe."

I told you about friend France's museum, where he had all sorts of wild animals stuffed, and fixed up so they looked exactly like life. He has for many years been a great wolf-hunter; and the funny part about it is, that, when he hunts wolves, he does not have any gun or dogs, nor even a pistol or a bowie-knife. When the wolves are killing sheep, and the folks can not catch the wolves, they send for friend France. He just starts off by himself, peeking about here and there with those sharp eyes of his, noticing a thousand things that you and I would never have noticed at all, and by and by he gets the wolf, *and the cubs too*. Perhaps most of you have heard the story of General Putnam, who crawled into the den of a fierce, bloodthirsty wolf, grabbed it by the ears, while his friends pulled him out with a rope attached to his feet. Friend France said, that, to one who is acquainted with the habits and nature of the wolf, this was no wonderful thing at all. He said he had crawled into wolves' dens, and got them out, over and over again. Years ago there was an old she-wolf that made a terrible havoc among the sheep in the vicinity of that very mound (or mountain), which to me was an unceasing wonder as it raised its head against the eastern sky. He tracked the wolf up into a den, or sort of cave, on the north side of the mound, where the hill is so steep that nobody can climb it. He hired a man to go with him, and they approached the cave just at nightfall. This cave was formed by a large rock resting against the mountain-side; and as a good deal of dirt had settled down under it, the crevice where the wolves crawled in and out was hardly large enough for a man of the size of friend France. So he took along a hoe, and dug the dirt away so he could get in. As it was so near night they decided to lie down and keep watch until morning. They judged that the old she-wolf was outside, because, during the hours of the night, they could hear a constant cat-like tread, or stepping, on the leaves and twigs above and below the entrance. Before very long his companion got frightened by the howling of the wolves, and went away, leaving friend France alone.

"But, didn't you keep up a big fire to keep the wolves away?"

"Fire!" ejaculated he; "what did I want of fire?"

"Why, so the wolves would not eat you up."

"Well, I reckon they would have had

tough chewing if they had set out on that job."

Morning finally came, and with his hoe he proceeded to make the cave big enough so he could get in. Then he plugged it up with a stone so the mother-wolf would not get in behind and bother him, and then he went for the cubs. After considerable digging he got hold of them; and, taking one under each arm, he carefully backed out; then he went back for another; but, probably getting a little elated at the pile of money he was going to get for their scalps, he made a little too much haste and bumped the head of one of the cubs against a projecting rock. At this the little chap set up a piteous whine; and you can imagine his consternation on hearing the deep, fierce, angry growl from the mother, who was not outside after all, but right there back of her cubs. Now, during all this time he had not so much as a match in his pocket. He crawled out with his cubs, however, laid them down by the others, put some matches in his pocket, and, armed with a spear which he sometimes took along for such emergencies, he went back into the den. When he got where he expected the war to begin, he scratched a match. As its feeble blaze lighted up the gloom within, the first object which he beheld was the mother-wolf, with open mouth, and eyes glaring like coals of fire. He thought first of pushing the spear right into her mouth; but experience had shown that this was not the best way. He had time, by the fitful glimmer, only to lower his spear toward the region of her heart, when she made an angry spring, so fierce that, when she struck the point of the spear, it threw him, spear and all, over back until the back end of the spear struck on a projecting rock, driving the blade clear through her body. He trudged home, not only with the scalp of the mother, but, if I recollect aright, four or five cubs. He says nothing is to be feared from wolves unless they come in great droves. They are sneaking, cowardly, and afraid even to look a courageous man in the eye. If they can sneak around behind so as to grab one's coat-tails they may venture an attack in that way when very hungry.

On going home late one night he was admonished by a friend to take a dog along, as it was certainly unsafe. It was in the winter time, and very soon he could see the wolves dodging behind him. The dog became frightened, and ran for his life. For several miles, two wolves kept so close to him that they actually snapped their teeth at his coat-tails; but he said, that, so long as there were only two of them, he let them snap all they wished to, thinking he could stand it if they could. When they got through the woods into the clearing, they skulked off.

At another time he was employed to catch a she-wolf with several young ones. The young ones were too small to be afraid, and in a little while he had taken their scalps and buried the bodies. His employers, however, complained bitterly because he caught the cubs and let the mother go, insinuating that this was a game of the wolf-hunters, to

leave the mother to furnish more cubs, so that the hunters could get the bounty for a new litter year after year. Friend France, however, told them to be patient, and have a little more charity, assuring them that he would have the mother in less than 24 hours. Sure enough, when night shrouded her from gaze she tracked them to the place where her darlings were buried, and commenced to dig them up, proposing, doubtless, to carry them home and give them a decent burial according to the customs and traditions of wolf fathers and mothers; but, alas! while she was showing her devotion to the last remains of her loved ones, friend France captured her also. This is one of their tricks for getting the mother after they have captured her cubs.

Now, little friends, if you want any more wolf-stories, you must ask our big friend Mr. France to tell them himself. Uncle Amos is now ready to give you some bear-stories.

Among other things that Prof. Cook said I must see before we went away, was their pet bear; and the pet bear at the Agricultural College is no exception to bears in general, in the matter of his love for honey. They do not let him take the honey out of the hives as the California and Wisconsin bears do; but when they want him to show off before visitors they just give him a bottle full. I walked down to the place where he is kept tied to a tree. He seemed quite glad to see me, putting up his nose in a very sociable manner, and licking my hand, and blinking at me in quite a knowing way with his queer little eyes. I did not discover the secret of his being glad to meet visitors, and scrape acquaintance, until I saw Charlie coming with a Muth jar holding nearly a pint of honey. The bear began at once making all sorts of expressions of approval, and reaching out for the honey; but as the programme was to take his picture with the Kodak while he "drank" the honey, I told Charlie that he must, if possible, get the bear to come out under the full blaze of the morning sun. According, Charlie unfastened the chain from the hickory-tree, and pulled him along in order to get him to climb over a pile of boards so as to get over the top of the picket fence. The bear came along quite cheerfully, keeping an eye on the bottle of honey. I was pleased to see the dexterity with which he climbed over the pickets, so as to avoid being pricked by their sharp points. Before he got out into the sunshine, however, he began to set up quite a whine, much like an urchin crying for a piece of gingerbread. As soon as he got the bottle between his paws, he stuck his long tongue away down into the honey; and, oh what a smacking there was! When he had licked out the honey as far as his tongue would go, he began to whine in real distress. But Prof. Cook bade me have my instrument ready, and just wait. Pretty soon it popped into the bear's head, that, if he could not coax the honey up to his mouth, he would have to put his mouth lowermost, so the honey would run into it. With a kind of grunt of satisfaction to think that he remembered how it was done,

he straightened himself up as you see in the picture.



BEAR TAKING HONEY OUT OF A MUTH JAR.

As he smacked his lips he tipped the bottle a little too fast; and it not only ran down into his mouth, but some of it ran over his eyes. That was of small consequence, however. He blinked with his eyes to get the honey off, while he smacked his lips and looked happy. Long after every drop was drained from the bottle, he kept poking his tongue around the inside and then outside, along his furry cheeks, and as near his eyes as his tongue would reach. Then he gave a purr of satisfaction. By the way, I forgot to mention that bears purr a good deal as cats do. When I first met him and patted him on the head he commenced purring right away, as much as to say, "Why, of course we are glad to see Uncle Amos here, as well as the rest of the folks."

Now, I do not know how many bottles of honey his bearship could take at one meal. A pint bottle full did not seem to go a great way; and as it must be quite a little tax on the good friends at the Agricultural College, I do not know but we ought to pass the hat around, to help Prof. Cook bear the expense. His bearship ought really to attend our next National Convention. He could sample honey, any way.

Well, the sun was rising higher up. It would soon be train time, and there were more things to see yet. So Charlie picked up the chain, and told the bear he must go back. By the way, Charlie is a son of Prof. Cook's brother (who lives on the farm), and a nice boy he is. The bear, however, cast many lingering looks at the empty bottle, and with some reluctance started back for his inclosure. We were all in a hurry; and just as Charlie gave him a yank to make him step quicker, as he climbed over the pickets again, his appearance was so irresistibly comical that I snapped the Kodak on him once more.

He was whining softly to himself because he could not have any more honey. In the meantime Charlie was tugging the bear's

chain until its collar had slipped around, pulling the fur the wrong way, and tipping one ear forward in a most comical sort of way; at the same time the honey had not



HIS BEARSHIP CLIMBING A PICKET FENCE.

ceased dripping from his eyelids. Meanwhile one of his hind feet was clawing in vain to secure a foothold on the smooth pickets. Finally he got on to a strip of board and got over. He did not say good-by as I started off with the Kodak; but his comical look, and his mischievous-looking countenance, were "better than a circus," as the boys sometimes say.

Now, little friends, I hope you as well as Uncle Amos know a little more about bears and wolves than you once did; and while we defend ourselves from their savage nature and warlike claws, let us remember that they are God's creatures, and, in one sense, our neighbors.

OFF TO THE OIL (?) WELLS.

AUNT KATIE TAKES US OFF TO ANOTHER PICNIC IN CALIFORNIA.

AS you all seemed to enjoy the trip we took up to Zaca Lake, suppose you go with us to-day to the oil-wells near Port Harford. They are 70 miles away, so we will go on the excursion train that runs there and back for one dollar. Ernest is calling, "Come, mamma, are you not ready yet?"

"I will take the lunch-basket: and, Lewis, you start with the baby, while mamma picks up the odds and ends, and fastens the doors."

"As mamma has got everything done that she can do until you all get out of the house, away you go, and we will follow," says papa.

"Hurry up, or you will be late," is the last we hear from the youngsters as they rush out of sight, headed for the depot. We shall get there in plenty of time, so we will walk slow and get over the hubbub, and enjoy this lovely morning air. I especially appreciate the slow walk, for I have been pretty busy ever since 6 A. M., and it is now 8; and then,

again, a walk in the morning is rather a novelty in my busy life.

Well, here we are at the depot, and we shall have to amuse ourselves by looking at the people coming for 40 minutes yet. But that soon passes, as we greet this one and that as they come up to the platform.

Toot! toot! sounds the engine, and up it comes, gliding gracefully by, and stopping quietly just beyond the platform. In we all get, and soon we start, not with the jerk, jerk, that used to be so trying, but smoothly we go, gaining in speed until the highest speed these narrow-gauge tracks will allow is attained. Soon we get to a station, and slacken up for a moment to give the station agent time to signal stop or go on. We stop, as a couple of young fellows wish to go with us. Then on we go, rattling over bridges. Oh! bless me, isn't it pleasant riding on the rails? At nearly all the stations and depots, some one or more join our party. The young folks keep up a constant chatter, while we of more sedate and maturer years listen, and smile at their sallies, without the trouble of thought. We just rest and enjoy. Soon San Luis looms up in sight; and when we stop, many get off the train and more get on, so that, as we glide down the cañon that leads to the sea, where Port Harford is, we are quite crowded; but good order prevails, and we keep a sharp lookout for familiar landmarks. Here we go, past the Catholic burying-ground, then a bare rocky hillside seems to glide past, then the large and handsomely arranged Protestant cemetery appears. Then on, on, until "Oil Wells!" is shouted. About half the people start; and when the train stops, off we get. Baby's wraps and lunch-baskets are distributed, and we cross the little bridges, walk under those grand old oaks and sycamores, and in three minutes we arrive at the bath-house.

"What! bath-houses?" says one; "do you bathe in oil?"

We laugh, having forgotten that all our party did not know it was hot sulphur water we came to see, and not oil.

"No, we do not bathe in oil; but do you see that water pouring out of that six-inch pipe, up on that platform?"

"Yes."

"Well, the company of men who owned this tract of 100 acres thought that there was every indication of oil. You see, the mountain back of the well is coal and slate formation. Well, they decided to bore for oil, so they got an artesian-well outfit, and commenced boring. When they got down about 400 feet they struck this hot sulphur water. They shut it off, although it was a very strong stream, and bored 500 feet more, but found nothing but the hot sulphur water. So, as there are no warm baths near here they decided to let the water run, and they built that long bath-house, that plunge-bath house, and the large hotel you see over there, and then got the cars to stop and let passengers off at their path, and now the place goes by the name of Oil Wells. It is well patronized, especially on excursion days, which occur about every two weeks."

The boys have rushed off to explore every place, and to speak for a chance in the plunge. No bathtubs for them, but we speak for a tub and get it. The water is just the right warmth to be delightful. The baby thinks it a little hot, but gives only one or two grunts, and then proceeds to paddle and splash

with the greatest delight. Oh, the delicious rest and comfort we get from that bath! We are all as red as beets when we finally emerge from the rooms. Now, be careful and not sit or stand where the cool ocean wind will blow upon you. Here is a handsome pavilion. We will spread our lunch and take our ease in its shelter, before we ramble about. The boys gobble down (they do not eat) their share of the lunch, and that is the last we see of them till about train time. We eat and rest, and then wander up to the hotel, to look for friends. We are surprised at finding that we are well acquainted with the landlady and two or three of the guests, being old acquaintances. We pass a pleasant hour on the broad veranda, looking at the charming natural view, and watching the picnic parties, campers, and the constant going and coming of vehicles loaded with live freight. There is no loud talk or rough manners; all seem quietly happy.

It is about train time. Get the things ready, for we must leave this sylvan retreat, and hie away home again, taking with us a pleasant memory of a day pleasantly spent. Puff, puff, whiz, here's the train. We all scramble on; and just as day is fading we arrive at home. AUNT KATIE HILTON.

Los Alamos, Cal.

TRYING TO RAISE POP-CORN.

I planted some pop-corn. It did not do very well. Two years ago I had a piece, and the musk-rats helped me harvest it. I think if I keep trying I may have a good crop some time. I have a colt two years old, named Pedro. I am saving money to buy a saddle. I have a lamb. Its mother is dead. MORRISON J. McCLAUGHRY, age 10.

Salem, N. Y., Sept. 5, 1889.

TOBACCO A REMEDY FOR ROBBING.

Father has 26 stands of bees. While I believe as you do about tobacco, we had one case in our apiary where tobacco was a help to us. Pa opened a hive of bees when they were not getting much honey, and the other bees got to robbing them, and they got so mad that we could not go near them. Pa put some rotten wood in the smoker and smoked the robbers with it, but it would do no good. So ma put some tobacco in the smoker and went behind the hive and smoked them with it, and it quieted them in a little while. EDITH STAHL.

Rochester, Ky., Sept. 2, 1889.

A QUEEN THAT LIVED 5 YEARS.

In one of the back numbers of GLEANINGS you say it is a rare thing for a queen to live 4 years. We have one that we are certain was 5, and might have been 6 or 7 for all we know. She was an Italian, and we found her in a tree. My brother Stanley was stung this spring, and in a few minutes he was all over blotches. He breathed with difficulty, as if he had the croup. We were very much alarmed, but pa gave him brandy, and he soon recovered. Pa wintered his bees in the cellar, and they came through all right. ETHEL EDWARDS.

Ingersoll, Ont., Can., June 3, 1889.

THE FLORIDA SCORPION.

As I don't know much about bees that is not generally known, I will tell you something about the Florida scorpion. This scorpion is about an inch and a quarter long, grayish colored; has six legs, and a tail as long as its body. Its tail is jointed,

and has two little sharp hooks on the end. When it is angry it flirts its tail over its back and sticks these hooks into whatever it holds in its fore feet. Its sting is poisonous, and hurts a good deal, but never kills any one. We have found a good many in our house, in the bedrooms and kitchen. They like to get among blankets and clothing. Florida people learn to shake their clothes well before putting them on. I don't like Florida as well as Pennsylvania. DON C. BAIRD.

Orlando, Fla., Sept. 5, 1889.

ABOUT A QUEEN THAT STOPPED TO VISIT WITH A LITTLE GIRL.

Last spring we took five gallons of honey that the bees had gathered from wild flowers; but in June papa bought some buckwheat for the bees, and they gathered a good portion of honey from that. We took the upper story off, that they might store the honey away for winter food. We fed our bees last winter on sugar syrup. Papa takes GLEANINGS, and we always welcome its coming, with much pleasure.

One morning I was in the yard looking at the hives, and was ready to go into the house, when a queen came through the air and alighted on my arm. I caught her very gently, so as to show her to mamma; then I held her up on my hand, and she flew off to one of the hives. MAMIE BEDFORD.

Fayette, Wis., Sept. 27, 1889.

THE PECAN-TREE.

I promised to tell about pecans. The pecan-tree is large, like a walnut. Its leaves are like walnut. The pecan blooms in April, and the nuts get ripe in October and November. It begins to bear at the age of five to fifteen. The age of the pecan is unknown. Trees are found four and five feet through. At the age of fifteen it is not more than ten inches through. The nut of the pecan is in a hull, like the walnut, only much thinner, and it is divided into four parts. As the pecan gets ripe, the hull cracks open and lets the pecan drop. From one pecan up to six grow in a bunch. It is a pretty sight to see them growing in that manner. Some people wait till the pecans drop off the trees, to gather them. Sometimes they knock them down with a club. But the best way is to climb a tree with a long pole and knock them down with it, and pick them up. Sometimes the pecans hang on the trees until March. A 49-pound flour-sack holds a bushel, just even. There are 42 pounds in a bushel. Pecans sell for \$1.50 to \$3.50 per bushel.

Belton, Texas.

WM. MORGAN.

We are glad to know about the pecans. They have frequently been sent us from the South, and we have sometimes succeeded in selling them to a limited extent. I had already judged, by the appearance and taste of the nut, that they were something like our shellbark hickory-nuts. I do not quite like the idea, however, of clubbing nut-bearing trees with poles. Does it not injure the future usefulness of the tree? It seems to me that nuts of all kinds are much nicer if we wait till old dame Nature shells them out and lets them drop of her own accord. If, however, they hang on as you intimate, perhaps a gentle bumping might be in order, as a suggestion to the tree that it was time for her to shell out and drop her treasures.

A RUINED LIFE.

A SAD BUT TRUE STORY.

“O you know what has become of Alice B—, or do you ever hear any thing about her any more?”

“No,” was the reply; “I have not heard of her for a long time; but the last time I heard, she was in California. Her parents are living next door to me, and I see them quite frequently; but she has been such a source of grief to them that I never mention her name in their presence any more. She quite broke their hearts.”

Hearing the above conversation as it passed between two elderly ladies of my acquaintance, and having seen the person they were speaking of, and knowing something of the latter part of her career, I felt somewhat curious to know more of her early life. Hence I embraced this opportunity of making some inquiries of one who knew the whole sad story. Here it is in brief, and from one who had been her friend:

Alice B— was a very pretty girl, and when quite young was married to Mr. W—, with a fair prospect of a happy life. But she was exceedingly fond of admiration and gay society, and it was not long before she began to neglect husband and home for other society and gayer scenes. Only a few years of such a life—for they were years of misery and unhappiness—and then her husband left her, and she went home to her father's house, taking her two little children with her. Leaving them there, she went to another town and soon obtained a divorce.

About that time she became acquainted with a widower, a very respectable man, nearly twice her age, and possessed of considerable property. After a very brief courtship they were married, and went to reside in the vicinity of her former home. For a time all seemed to be going on quietly and happily; and for the sake of her friends as much as for her own, she was received in the best circles, and her past life ignored.

But, alas! a quiet life did not satisfy her; and her love of admiration, and her flirtations, became so notorious that people shook their heads, looked askance, and began to shun her. Friends talked with her, urging her to live a different life, but without avail.

One day, when in the midst of a gay company, she received a message summoning her home. Her husband had met with an accident, been seriously injured, and was thought to be dying. He was unconscious, and, after lingering in great agony for two days, death came to his relief. In the two years of their married life a little boy had come to their home; but the father had scarcely been laid to rest ere the little one sickened, and he, too, passed away. For a few months the mother seemed very penitent, and almost crushed by her great sorrow. Then the charms of the old life returned, and, seeming to forget every thing else, she went from bad to worse, and, becoming infatuated with a married man of bad repute, eloped with him and went west. She had left all for him; but he soon tired of her and deserted her, leaving her a stranger in a strange land.

What a wretched ending to what might have been a happy life! Can you imagine any cause for

such a ruined life? Let me tell you what her old father said:

“Alice was ruined by reading novels! We knew she was fond of reading, but we did not know the character of the literature in which she indulged until it was too late, and the mischief was done. She had spent much of her time poring over sensational novels—books filled with descriptions of flirtations, jealousy, and divorce—until her whole being became imbued with the poison, and she lived the characters over again in her own life. Her mind was poisoned, and so filled with ‘blood-and-thunder’ stories that every good impulse seemed destroyed.”

“Yes, Alice was ruined by reading *trashy, sensational books and papers.*”

How many lives have been wrecked and saddened in this subtle way! Dear reader, does not this story contain a warning? Should not parents, and others who have young people in their care, consider it as much of a duty to feed the minds of the young with good, pure literature, as to feed the bodies with healthful food? The mind *must* have food, just as certainly as the body; and if it does not find healthful food, it generally finds plenty of a poor character. In these days, when so much good literature can be obtained for a small sum of money, is it not a duty to make provision for the home? Children crave something more than the Bible and Bible stories; and though these should always have a prominent place, if something more is not furnished them they will be sure to find it for themselves. Will it be “Broken Hearts,” and such trash, or something good and helpful, stimulating them to live good, pure lives?

Ipava, Ills.

ANNA B. QUILLIN.

My good friend, there are many and many cases like the one you mention, where lives have been ruined by reading trashy, sensational novels and papers. When in my teens I was greatly given to such reading myself; and the memory of the false impressions and false teaching that I then received will haunt me till death. Had I not been turned squarely about by giving my heart to Christ Jesus, there is no knowing where I might have been by this time; and I think now that the very best safeguard for any one is a complete surrender to Him whose spirit was “not to minister unto, but to minister.” Sometimes, during late years I have been foolish enough to waste a little time in reading something that has no point or moral to it; and I always feel guilty and ashamed of myself afterward. Perhaps many will think it too strict, but I do believe that great good would follow if it were a custom for every child in his teens to submit to his father or mother every book before reading it. The careful and prayerful parent can in five minutes determine whether the book be a profitable one or not. I would first turn to the introduction, to see what the author has to say, or what reasons he has to give for writing a book. Then I would read perhaps half a page in the middle, and may be as much at the close. Five minutes is enough to decide whether the book is for or against righteousness. If it has nothing to say either way, I would reject it. “He that is not for me is against me.” Many of us are in the habit of keep-

ing a careful, sharp eye about our gardens and our bee-hives, to see whether an enemy be lurking. My friend, it is a thousand times more important that you keep a sharp eye about the house, to see what kinds of books and papers are being brought in; and especially is this keen scrutiny needed in a family of many children. I would not deprive these little minds of books and papers; but whenever one book is taken away, or sent home, or back to the library, bring three or four good ones to occupy its place. Books and papers are cheap and plentiful; but do not admit them solely because they are cheap. Our stenographer just now asks for a list of good books. In the way of fiction, I know of nothing better in English print than Pansy's entire series. And, to cut the matter short, I would recommend the Sunday school library in any of our established churches. I can not remember that I have ever read one (and I have read a good many purposely to decide whether they were fit mental food for our children) without feeling that it had brought me nearer to Christ Jesus.

NOTES OF TRAVEL.

SOMETHING ABOUT ARTIFICIAL HONEY-COMB.

MY last visit among the bee-keepers was at Bell Branch, near Detroit, where friend M. H. Hunt hails from. The picture of Mr. Hunt's pretty apiary will be found on page 625 of our issue for Aug. 1. The picture, however, does not do justice at all. The hives are located in groups under large branching apple-trees. The trees are trimmed so as to be out of the way of one's head when working among the hives. By the way, when wearing a bee-veil you can not afford to have brush or limbs of trees catching on to your veil, tearing it or pulling it off from your face. If you do not fix things conveniently for rapid and uninterrupted work, when you get a big honey-crop you will be sorry.

Friend H. has two children—a boy and a girl. The girl is about the age of Blue Eyes; and as Blue Eyes was with me on my return trip, they two very soon became quite sociable. I think it is no more than fair to state that friend Hunt is one of our "gilt-edged" business men. Nobody ever has to ask him for money when he is owing; and, in fact, I do not believe we have ever sent him even a statement by way of reminder. He is also so prompt, careful, and accurate in filling orders that I can not remember of having ever received so much as a breath of complaint against him.

The horse-power, which we described and illustrated, which he first used for hive-making, has been laid aside, and a neat little steam-engine takes its place. I believe, however, he buys most of his hives and sections from larger manufacturers, using his engine only for filling special orders, and for making odd-sized hives, or to fill out some order that is wanted in a great hurry. He has a nice stock of lumber, accurately planed at a planing-mill, piled up ready for

emergencies; and with his help and his machinery he can very quickly supply any thing unusual or in immediate want. Near his factory is a buckwheat field, so uniform and of such wonderful luxuriance that I snapped the Kodak on it once or twice; but it did not work up so as to be worthy of a place in print. Friend Hunt is only eight miles from Detroit, therefore he has ample facilities for getting lumber at low prices, or any thing else he may need for the supply business; but as he is three or four miles from a railroad station, he contemplates moving up nearer by.

One inducement to call on friend Hunt was the promise that he would go with me to visit the Eureka Supply Co., in Detroit. This company is arranging to manufacture artificial honey-comb, under friend Weed's patent. This has been frequently mentioned in years past, friend Weed having, some time ago, an advertisement in GLEANINGS, of small pieces of artificial honey-comb. This was while he was located in Cincinnati. We were very kindly received, and even hospitably treated. We saw the machinery for making the comb, and it was all very kindly explained. By a powerful hydraulic press, cakes of wax, warmed to just the right temperature, are forced through proper dies, so as to form cells of honey-comb, not only deep enough for worker-bees, but two or three feet deep, if you choose. In fact, a great big stick, or log, of cells of honey-comb, reminded me very much of a split chestnut fence-post, the cells looking like the pores of the wood, only being ever so much larger. Now, in order to make honey-comb, all you have to do is to cut off a slice $\frac{1}{8}$ inch thick. The slices are cut off like cutting slices from a loaf of bread. Of course, this is not honey-comb, because the cells have no bottom half way through, and here is the great problem—how shall we make a bottom to this honey-comb? I suggested at once that sheets of comb, with holes clear through, be given the bees, and let them see what they can do with it.* I was surprised to learn, however, that the Weed brothers had never tried it. I agreed to make the test in less than a week if they would send me a piece; but it has not come yet.

Just a word about slicing off the comb. How do you suppose they do it—saw it off? Not much, where the cell-walls are about as thin as natural comb. Cut it off with a knife? Not much better. The only thing is a hot wire. But the melted beeswax cools the wire off so quickly that nothing but an electric current can supply the heat fast enough; and accordingly they had just put in expensive electrical machinery, and an incandescent platinum wire capable of melting off slices big enough to fill a Langstroth frame. May be you would like to know how the die is made that produces the cells. As it is fully secured by patents, I obtained permission to describe it. Even if

* If the bees will fill comb with cells reaching clear through, when extracting we shall need to uncap only one side. Then comes the question, Will the bees fill the comb again, having access to only one side?

you saw the machinery, and looked at it with a magnifying-glass, you would scarcely understand it without explanation. In the first place, the wax is forced through a perforated plate. It then comes out in strings like so many worms, if you will excuse the illustration. Well, these strings are obliged to pass under an enormous pressure between a series of hexagonal plates screwed fast to the perforated plate. Suppose you had a lot of six-sided buttons, placed with such mechanical exactness that the wax that oozed up between them should be as thin as honey-comb. These tubes of wax would then rise up, as they do in fact, making a "log of wood" composed of six-sided cells. Will this machine ever enable them to get the \$1000 by manufacturing for sale artificial comb honey? Never. Even if they could get a bottom to the cells, it could not be capped over so as to imitate nature. Any bungler could tell the difference, just as any bungler could tell artificial strawberries from nature's make. The invention, however, may give us frames of comb more accurate than the bees ever produced, and possibly cheaper than the bees can make them. Our friends have been at work at it, however, a good many years, and have, during the past season, offered for sale pieces large enough to fill a section of honey; but the price will not as yet permit it to come into general use among bee-keepers.

I feel greatly indebted to the members of the Eureka Supply Co. for the information they gave me in regard to the present status of electrical science. They very kindly took me through the electric-light establishments in Detroit, and gave me an insight into the machinery and workings of the science that will make me feel under obligations to them for a good while.

OUR HOMES.

But now they desire a better country, that is, a heavenly: wherefore God is not ashamed to be called their God; for he hath prepared for them a city.—HEB. 11: 16.

Not to be ministered unto, but to minister.—MATTHEW 20: 28.

AS soon as I started on my homeward trip from Wisconsin I unconsciously began humming the familiar hymn that commences:

"One sweetly solemn thought."

I do not know what brought it to mind, but it seemed to me all at once as if I had never appreciated the wonderful thought embodied in the hymn,—

"I'm nearer home to-day than I have been before."

I believe that a great part of the world feel a dread of death. Many feel sad to think they are growing old. How is it with you, my friend? Have gray hairs and wrinkles terrors for you? Do you feel sad to think that the springtime of buoyant youth is slipping and passing? As your eyesight fails, and you begin to need spectacles, does it bring a thought of dread that your sight may fail altogether? Hearing

will very likely become impaired also. Your steps will begin to grow feeble, and may be rheumatic pains have already begun to make you twinge. Robert Ingersoll has given perhaps the most vivid picture I have seen drawn of death, as a dark, dismal abyss. From his standpoint of view, there was not one ray of light—nothing at all to make one joyous, but, rather, the utter extinguishing of every thing beautiful and bright. May God be praised, it is not so with the Christian. In the language I have quoted from, it is "Nearer my Father's house," where "burdens are laid down." When I am doing my duty I often feel not only joyous but buoyant at the thought of going home. Gray hairs that have come while in the Master's service have no terrors for me. My eyesight has failed greatly during the past summer. Unless the light is very strong, I am entirely unable to read fine print without glasses. Were it not for the invention of spectacles it would be a sad, very sad, cross to bear; but with the aid of even those that are furnished for an almost insignificant price, I can see just as well as I ever did. May the Lord be praised for the invention of spectacles! But suppose my eyes keep on failing until even specs do no good—what then? Never mind, dear friend. The resources are not limited with Him whom I serve; and he has said that not one good thing shall be withheld from those who fear him. Since I have been following him, no good thing *has* been withheld, and a remedy has been provided for every ill that life has brought. When I can read no more (if that time shall ever come), I am sure that Christ Jesus will help me to be useful in some way or other. Now, it would be wrong to be in a hurry to get through with life's duties and cares; but it is *not* wrong to rejoice at the thought of that home "where many mansions be."

I enjoyed my trips exceedingly, both to Wisconsin and California; but for all that, there came a pleasant thrill when I thought of my home and the loved ones who would be glad to see me. In the same way I have been thinking of that heavenly home—that "better country" spoken of in the language of our text. Before death comes, very likely I shall have grievous pains, and may be sore crosses to bear; and sometimes when I think of how others are called upon to suffer, I tremble for fear I may not have the grace and fortitude to bear suffering as they do. But then, again, comes the promise, "Lo, I am with you always, even to the end of the world." Perhaps some of you may say, "Now, look here, brother Root, we don't want you to be making calculations about that 'heavenly home,' for many a long year. There is work that we want you to do. Had you not better be planning to do it 'while it is day, for the night cometh when no man can work'?"

You are right, my good friend; and the suggestion just brings me to the second text. You see I have two of them for my talk to-day. What would God have us do while we are *waiting*? Why, the second text answers the question—"Not to be ministered unto, but to *minister*." If we want to be

happy and buoyant and rejoicing always, let us follow the text, as did even our Lord and Master; for he came "not to be ministered unto, but to minister, and to give his life a ransom for many."

In many avocations and pursuits of life, we are crowded. Sometimes the house you live in is too small. Sometimes the young folks, when they get married, start to live with father and mother; and with the love of Christ Jesus in the heart of even one side of the house, there will never be any feeling of being crowded. Yet the feeling sometimes comes, however. The young folks want to have more room and more liberty. A good many of the friends complain because so many pitch right into any line of business when it begins to be a little profitable. Somebody makes a pretty good thing of raising strawberries. Then everybody else in the neighborhood goes to raising them until they hardly bring enough to pay the pickers. There is a constant crowd. Somebody starts a drygoods store in a little town. Pretty soon another one starts up on the opposite corner. There is not business for both of them. It is overdone. So with the drug-store and the printing-business; so with the hotel-keeper. Why, I have even heard such things whispered about the *bee-journals*. GLEANINGS IN BEE CULTURE has done tolerably well; and others start bee-journals, thinking that they may also do tolerably well. By and by the old trouble comes up—there are *too many* bee-journals—the field is overworked. I did not say so, my friend; but it is what the *world* says. We occasionally meet people who have tried strawberries, honey-raising, dry goods, drugs, hotel-keeping, and may be they have started a bee-journal. All of them fail, because there was not a chance anywhere for a man to turn an honest penny. Sharpers and the tricky ones get all the money, so they say. Sometimes they indulge in bitter flings toward the middlemen, who "toil not, neither do they spin." They do not wait for their heavenly Father to feed them—at least so the world says—but get a pretty good feed by cheating *right and left*. Now, please remember, friends, that I have not said this. I do not believe it. The middlemen are my friends, and I love them. I hope I should love them, even if they *were* all enemies; but I am glad they are not. The world has also a way of talking about the "bloated aristocrat." It pains me to hear this term, because it is a hateful one. Well, I have made quite an array of truths, have I not? I have not spoken of *strikes and trusts*, but I might have done so. Is there a remedy? Why, Heaven bless you, my friend, to be sure there is; and the remedy is this last text of mine. I wish it were painted on a great big shingle, and tacked up at all the street corners—yes, in letters so big that they could be put up above the tops of the highest trees or meeting-house steeples. Why, since I think of it, I do not know but that it would be more needed above the steeples than over the trees. I should like to see it across the sky—"Not to be ministered unto, but to minister." Now, please do not turn away, dear friend.

There is room for all the world under the banner of this text. There is plenty of employment, with *good pay* to be had, right along in this line. The business will not be overdone for a thousand years. No, it will *never* be overdone. Thousands and thousands may enter into it, and yet there will be elbow-room—plenty of room for more—"Not to be ministered unto, but to minister." The sad part of it is, that human nature unregenerated is continually clamoring for servants to wait on them; and if the servants would work without pay, all the better. Christ Jesus stands almost alone in this grand, glorious, loving work of helping people—helping everybody, being glad because you can help—being a servant. The world clamors for fat salaries and not much hard work. The servant of Christ wants only a chance to *serve* somebody. He does not trouble himself about the pay, whether it be big or little. Why, bless your heart, dear brother and sister, he does not need to, for the Lord of all—the Judge of all the earth—takes care of the pay. He has said, in a thousand ways, that we need not worry; and he is the best paymaster on earth—more prompt and liberal than any man who ever lived. There is only a little condition; and that condition is, that we "seek first the kingdom of God, and his righteousness," and the reward is promised that "*all things* shall be added unto you." It is true. I know it is true; for every thing around me emphasizes the truth of it. Now, when I started out, perhaps you did not see that my two texts had any connection with each other. Do you see it now, dear friends? If we love to minister to those around us—to these brothers and sisters, shall we not go through life rejoicing, and singing the little hymn that gladdened my heart and made me joyous as I approached my home?

One sweetly solemn thought
Comes to me o'er and o'er;
I'm nearer home to-day, to-day,
Than I have been before.

CHORUS.

Nearer my home, nearer my home,
Nearer my home to-day, to-day,
Than I have been before.

Nearer my Father's house,
Where many mansions be;
Nearer the great white throne to-day,
Nearer the crystal sea.

Nearer the bound of life,
Where burdens are laid down;
Nearer to leave the cross to-day,
And nearer to the crown.

Be near me when my feet
Are slipping o'er the brink;
For I am nearer home to-day,
Perhaps, than now I think.

Would you like an illustration or two of the way I understand this text? A few days ago, a man with a very heavy load, in driving on to the hayscales, got one of the wheels between the platform and the bordering timbers. The enormous weight had squeezed the wheel down so that the load would apparently have to be removed before it could be extricated. He stood with a troubled look on his face, for he was doubtless in a hurry.

"My friend," said I, "don't throw your load off. We have four or five powerful jackscrews in the blacksmith-shop, and with them you can raise the wheel out of there in a twinkling, load and all."

Well, he looked happy; but I think I enjoyed it more than he did. I was exceedingly busy that day, and some of my own work had to be neglected for a few minutes. At another time a teamster would have broken his wagon on the railroad track had I not stopped to shove a board under the wheel, and extricate it from its dangerous predicament. I then explained to him the matter, and told him I had seen many good wheels broken down by attempting to cross a railroad track at an angle. A man was rolling a heavy barrel of honey from the depot platform on to his wagon. The wagon-bed was frail, and the great weight would assuredly have smashed it down at once, breaking the wagon, and may be breaking a limb of the driver. I ran rapidly, and called to him just in time. A bit of board set up endwise under the weak point made it safe. Now, accidents are occurring almost daily because people often learn only by experience about these things. Some days I tire myself out, and perhaps neglect my own work, in teaching the younger ones how to avoid accidents—how to get along safely and easily with their work—may be how to prevent catching cold, when a chilly October afternoon comes after these beautiful sunshiny days. Sometimes I can get in a word for Christ Jesus; and if it seems to be well received, such *ministering* makes me happier than *any thing* else. When night comes I am very tired, and may be the printers scold because they have not had the copy they needed. But I am happy, nevertheless. And may be if I had written the copy without doing the *ministering*, I should not have been able to give you something really helpful. And as I close I feel like thanking the dear Savior because he has given me a helpful message to deliver to you to-day. I am sure the message will be helpful, for it is builded on the solid rock of Christ's promises—not to be *ministered unto*, but to minister.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

WHAT SHALL WE PLANT IN THE MIDDLE OF OCTOBER?

WELL, friends, we can not plant very much, unless it is rye or spinach, or winter-onion sets, or something of that nature. We can, however, start gardening almost as well as in spring, if we have hot-beds, cold-frames, or green-houses. During October and November, we can grow a great many things without fire heat or even the heat of manure. The simple protection of sash will give results equal to March and April. Lettuce, radishes, and other things may be matured under sash, without any heat. Tomatoes, lima beans, and a host of other things that are not consumed before frost, may be sim-

ply laid on the ground, attached to the vines under sash, and they will ripen up nicely. Even though we can not plant outdoors, there is lots of work that we can do. We have some beautiful celery that was transplanted in very rich ground Oct. 1. As we have had abundant rains, it is now making a very beautiful growth. The plants were, however, very strong, and each one was taken up with a ball of earth. It is now, Oct. 10, ready to bank. I merely mention this to show you what may be done with vacant ground where it is very rich. Ours was where we dug a lot of very fine Rural Blush potatoes. Another thing: Even if it is not advisable to set out strawberries later, you can fix the ground all ready for them in the spring. That is just what we are doing this beautiful Indian-summer afternoon. The boys are gathering the bush lima beans, and pulling up the tomatoes, while the big team is drawing manure and covering the ground as thick as it can be plowed under nicely. We are going to fit it exactly as I described on page 721. Just as soon as the ground thaws in the spring, the plants will be put in with transplanting-tubes. We could put them in this fall without any trouble, provided they were mulched heavily. But it will probably be cheaper to fix the ground now, and then let the plants stand in the matted row where they are, until spring.

THE IGNOTUM TOMATO.

We have received testimonials enough in praise of this tomato to make a startling pamphlet. Below is one of them:

I received from you a packet of Ignotum tomato seed, containing just 20 seeds. Nineteen seeds germinated. One plant was accidentally broken off. They were transplanted in open ground, directly from the greenhouse, May 23d, the same day that I transplanted Dwarf Champions from the cold-frame, and the first ripe tomatoes were picked from Ignotum. One plant of Ignotum turned out to be a tree-tomato, and another set such rough fruit that I pulled it out, so I had left but 16 plants. From these I picked about half a bushel of tomatoes *per plant*, and from that amount I have saved 28 ounces of seed. Half a bushel of tomatoes to the plant, when planted 6 ft. x 5, is a yield of 650 bushel per acre. Pretty large, I think.

F. S. McCLELLAND.

New Brighton, Pa., Oct. 7, 1889.

The above not only gives the good points, but some of the bad ones. It is true, that some of the plants produce bad-shaped fruit; but by selecting seeds persistently from one of the best, I think we shall correct the tendency. On our grounds but very few plants this season produced any thing different from the regular type. I admit that the tomato is not perfect in every respect. There are other tomatoes of better shape; but no tomato, so far as I know, has as many desirable points. I have offered our friend \$7.00 for his 28 ounces of seed, so you see there was more to my little present of tomato seeds than any of us thought of at the time. The little gift has given quite a number of the friends several dollars—in one case \$15.00 or \$16.00; and I feel glad

over it, exactly as I have tried to describe to you in the Home Papers for this issue.

CATCHING DESTRUCTIVE MOTHS BY BURNING A LAMP IN A TUB OF WATER AT NIGHT—SEE PAGE 790.

Prof. Cook replies to the matter as below:

The cut-worm moths and the cabbage plusia could be caught by a light over a tub of water; but the remedy is hardly practical, as the moths fly at night, and the time varies, so no one would be on the lookout, and ready. The worst pests, the cabbage-butterfly larvæ, fly by day, and would not be killed at all. Bubach (California pyrethrum) kills all, is cheap, easy to apply, and practical.

Agricultural College, Mich. A. J. COOK.

GETTING SEEDS OF SPIDER-PLANTS AND ROCKY MOUNTAIN PLANTS TO GERMINATE.

Looking over Sept. 1st GLEANINGS, page 709, comments on *Aeneas Walker*, you say you can't make the spider-plant seed start in the greenhouses and hot-beds. The Bible teaches you your religion, and why don't you let nature teach you her laws? Have your gardener mix a quart of seed in a bushel of dirt, in a box. Let it freeze till wanted; then thaw it, and sow where wanted in the house or beds, and you will wish it in some other place. To some one who could not start any, I gave a pint of dirt from where they grew two years ago, to scatter in the plant-pot; and on inquiring about it he said he had more plants than he wanted. H. L. JEFFREY.

New Milford, Conn., Sept. 11, 1889.

HOW TO MAKE AND KEEP SOUR-KRAUT—INFORMATION WANTED.

Can't you give an article on making and keeping of sour-kraut? I have more or less difficulty in getting the stuff to keep. It spoils before half the winter is past. Some of my neighbors say, to keep sour-kraut I must freeze it solid during a cold snap; others say it is spoiled after being frozen. How is this? Another thing I should like to ask: Have you tried the Crandall currant, sent out by Frank Ford & Son? If it is as good as the introducers claim it to be, I must try it, even if a single bush costs more than a dozen of White Grape currants.

W. G. BRAINARD.

Gouverneur, N. Y., Sept. 27, 1889.

We have had a good deal the same trouble you mention. When we put our sour-kraut in clean crocks, however—say crocks holding toward a quarter of a barrel—we had no trouble. Perhaps some of our readers can help us a little.—We have Ford's Crandall currant on our place. It has fruited this year; but the berries are very few in number (although the bush is large and strong, being two years old), small in size, none of them being much larger than our largest cherry-currants; and last, but not least, we did not find them very good. Another thing that troubled me, the bush and fruit look almost exactly like an ornamental flowering currant bought some years ago of Storrs & Harrison, Painesville, O. I notice, however, that our neighbors, Ford & Son, write to one of our periodicals on gardening that the bushes seldom bear profusely until they are several years old; and, if I am correct, the yield of fruit does not seem to be uniform on different bushes.

Ours was on very rich ground, and has made a very rank growth. Perhaps it will do better when it gets older. Let us not be in haste to condemn new things.

HOW TO TELL WHEN WATERMELONS ARE RIPE.

I see in GLEANINGS for September 15 that Mr. M. L. Benedict, of Crete, Neb., wishes some one to tell how to know a ripe watermelon by sight; and as I consider myself an expert at this I will try to do so. My first crop was in 1874, when I had two acres of melons, weighing from 20 to 60 lbs., that lay so close together that a man could have walked in any direction and stepped only on melons. I then knew of no way of telling a ripe melon but by thumping, so I thumped till I wore the nails off all my fingers to the "quick," and was compelled to stop that method. I then had recourse to sight; and, either from instructions from others or my own observations, I have found the following indications good in the order named:

1. There grows on the vine at the joint, where the stem of the melon joins it, a tendril. When this dies it indicates ripeness.

2. There also grows at the same point a little rounded leaf that we call the "ear." When this dies, it more certainly indicates ripeness.

3. Turn the melon up and notice if any change has taken place in the shade of the part next to the ground. A slight yellowness indicates ripeness.

4. The upper surface becomes a little rusty, and changes its shade a little, just a little, about the difference there is between milk that has "set" and that which is fresh, when the melon ripens.

This is the indication upon which I mostly rely; and so expert have I become in its use that I can go into a field with three or four assistants and point out ripe melons faster than they can pull them. I can also tell pretty closely the degree of ripeness, so as to be able to pull them a day or two before they are ripe, and get them to market at just the right time.

Of course, there are variations, such as difference in varieties, soils, seasons, climate, and diseases of the vine, that experience alone can make us understand.

W. H. GREER.

Paris, Tenn., Sept. 23, 1889.

Thanks, friend G. I think you are about correct in the matter.

THE JESSIE STRAWBERRY, AND ITS ADAPTABILITY TO GREENHOUSE CULTURE, ETC.

The Experiment Station, Columbus, O., in their July report, state as follows:

JESSIE—(perfect). The present season is the first in which the Jessie has not been entirely satisfactory here. It seemed to be less vigorous and less fruitful than in former seasons. It is much more fruitful than Cumberland and Sharpless, but less so than Bubach. It takes first rank in appearance and quality of fruit, hence is valuable for amateurs and those who grow for home use only. As a market variety it is not without value, and is especially useful to plant with pistillate sorts. Mr. Farnsworth says: "Jessie is not a success with us—not productive enough." It proved to be the best for forcing of any variety tested, maturing quite as fine berries under glass as out of doors.

The last sentence is quite an interesting one to us here: for while we have not much ambition to produce strawberries in the winter time, if we can, by the use of sash in the spring, get them a few weeks earlier, it may

open a business that will compete successfully with that of shipping berries from the South.

Here is something from a friend, right in a line with the above:

A runner blossomed the last of August. In September, toward the last, it bore about eight or ten good-sized berries. Perhaps you can start some fall berries. Who knows, in these times?

WM. C. HOLMES.

Amity, Dekalb Co., Mo., Sept. 27, 1889.

This reminds me that our friend Dan White, of New London, Ohio, who raises strawberries on a considerable scale, as well as honey, informed me a short time ago that he had several runners that put forth blossoms, and bore fruit in the fall. Now, will our experiment stations or somebody else tell us what is necessary to make the Jessie do so every time? Who knows but that we can have strawberries here in the fall months as well as in California and Oregon?

TESTING NEW VARIETIES OF STRAWBERRIES AS THEY COME UP.

A word in regard to new strawberries in general. The *Rural New-Yorker* people say they have been for years testing every new variety that made its appearance. Some seasons the new berries that claimed wonderful things amounted to even 50 or 75; but after years of patient testing they have not a whole dozen worthy of being retained. The probability is, that this work must still be repeated for years to come. The strawberries recommended ten years ago, that are still under cultivation, are very few.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, OCT. 15, 1889.

As the earth bringeth forth her bud, and as the garden causeth the things that are sown in it to spring forth, so the Lord God will cause righteousness and praise to spring forth before all the nations.—ISA. 61:11.

THE OREGON EVERBEARING STRAWBERRY.

A GOOD many of the friends have complained of the way in which the advertiser of these plants has used them. By the way, I will explain that our friend Seth Winquist is a boy of only 20 years of age; and when our friends learn that, I believe they will have a little more charity. You remember, that, when he first sent out the advertisement, I suggested that the price was too low. Our young friend soon found it out. Most of us, however, would have filled orders, even at a considerable loss, until another advertisement could appear, correcting the price. Our young friend, however, thinking it always fair and honorable to return the money, chose the latter plan; but so many orders were sent him that he was obliged to have printed circulars, pay

all postage, and do all the corresponding, for nothing. It was unfortunate for him to put the price so low to start with; but very likely as he grows in years he will also grow in judgment and wisdom. I think we can excuse him, can we not, even if his large advance in price does savor somewhat of speculation?

ANOTHER BEE-BOOK FROM GERMANY.

WE have just received from C. A. Schwetschke & Son, of Brunswick, Germany, a book devoted entirely to apicultural carpentry. The pages are 10 x 7, printed on fine calendered paper. This first number of the whole work contains 38 pictures of hives and out-apiaries and honey-houses. First we have, for instance, a most superb cut of the entire house or hive, as the case may be, and then a front sectional view, a side sectional view, and then the ground plan. The cuts show every piece used in the construction of the house, and its exact length, breadth, and thickness; in fact, the cuts give a better idea of the construction of the buildings than a personal inspection could possibly do. The typography of the book is of the very highest rank, and the entire work only increases our admiration for the scrupulous care and artistic eye of our German friends. All bee-keepers who can read German will find this work of great value, even in the construction of honey-houses of different shape from those represented. The work sells at 25 cts. a number, which is remarkably cheap. It is printed where Gravenhorst's book was, in Brunswick.

TOO MANY REMEDIES FOR FOUL BROOD.

THERE are remedies for foul brood almost without number. One claims that coffee is a sure cure; another that coal oil is the remedy; still another besmears his affected combs with a solution of sulphur, and he avers, that, since then, he has had no more trouble. The truth is, that, just as soon as Brown finds out that there is something irregular with the brood in one of his hives, he jumps at the conclusion that he must have foul brood. He straightway daubs the combs with a mixture of his own "get up." Eureka! it's a success! He must needs go and publish it in some bee-journal. Of course, he did not stop to consider whether the little irregularity in the brood would have got well any way; much less, whether he had the real disease in the first place. There may be some reason in using a remedy that is a well-known antiseptic or a germicide; but when a foul-brood mixture is neither, and has no science nor even common sense to back it, it is the height of folly for you to fuss with it. It is well enough for scientists to experiment with a remedy; but a bee-keeper who owns a hundred or even a less number of colonies can not afford to risk his whole apiary. Don't try any thing else than the starvation plan, or, in isolated cases, complete extermination. These are *sure*.

The above was written by Ernest. I heartily indorse it; and I should say that the same system of reasoning should be applied to remedies for diseases that afflict the human family.

GIVING IT TO THE EDITORS.

ONE of our subscribers, Mr. J. M. Harris, seeing the comb-honey business maligned in the usual way in the shape of a clipping from Harper's *Bazar*, in his own paper, the *Cedartown Standard*, after showing the impossibility of the thing, called upon the editor, and the result of it was that Mr. Harris

wrote an article refuting it. After showing the impossibility of the thing, he winds up as follows:

My friends, do you believe such a thing can be done? "Well, Mr. Bazar said so, and we have no right to dispute it." But that is not the question. Do you believe such a thing can be done? "Well, we may not believe it, still we are not responsible for a sentiment copied from another paper." If you were called into court to testify, you would not be allowed to repeat the sayings of others, but would be required to tell what you know about it. Now, my friends, what do you know about artificial honey-comb filled with artificial (glucose or sugar syrup) honey?

Mr. A. I. Root, of Medina, Ohio, offered \$1000 four or five years ago for proof of artificial comb honey. Not taken yet.

Now, what I am trying to do is to show you that I think you are not justifiable in repeating what others have testified against a neighbor unless you have some grounds for believing the assertion is true. There are some people who try to make an honest living, and it matters not what their business is, if it is honorable.

If apiculture is not an honorable calling, but is made a pretense of to defraud the public, then it should be suppressed. On the other hand, if it is right for a man to keep bees for the purpose of producing a beautiful, nutritious, and healthy food, I think the man engaged in it should not be accused of being a fraud, without evidence to prove the fact.

J. M. HARRIS.

Good, friend H.! Let others go and do likewise, if they have a county paper in their midst that has published the usual slander.

NORTHWESTERN BEE-KEEPERS' CONVENTION.

I HAVE just returned from a two-days' session of the above convention in Chicago, just as we go to press. The attendance was quite good, and we had an exceedingly pleasant and profitable time, further particulars of which will appear in next issue.

BEAUTIFUL OCTOBER.

I HARDLY know why it is, but October of late years is getting to have wonderful charms for me. Some have said, that, inasmuch as it heralds decay and death to a large part of the vegetable world, it is a dismal month; but not so to me. May be it is because of the spirit of that little hymn I have referred to elsewhere—"Nearer my home." And I rather think, too, that it is because of the thought that centers in the little text, "Not to be ministered unto, but to minister." We have just had a copious rain. The sun is now shining brightly, and the rich mellow earth over the plant-beds is just in trim to dig and rake up fine; and the thought of getting outdoors and making things grow during these October days fairly makes my heart bound; and sometimes I feel like shouting for joy and praise. I do not know but I should feel ashamed of myself a little, to think that a man within a few days of being fifty years old should be feeling as buoyant as a schoolboy; and it may be all the effect of that little text about ministering and being a servant. And then the glorious thought that comes with the consciousness of whom I am striving to serve! It is not only a glorious thing to be a "king's daughter," but it is a grand and glorious thing to be a king's son; because, you know, the son is always expected to work (*minister*) a little *harder* than the daughter.

THE CANADIAN HONEY-PRODUCER NOT DISCONTINUED.

ON page 809 we intimated in our letter to Dr. Mason that the *Canadian Honey-Producer* had been discontinued. This is a mistake; but I should not have stated this in public had I not supposed that the same had already been published in the *Bee-hive*;

but a careful search through its files shows that I was mistaken—that what I had in mind was the discontinuance of the *Queen-Breeder's Journal*. I regret this very much. I have received from Sect. Holtermann the following, which is no more than right that it should be published at this time:

BROTHER ROOT: I do not like the idea of a change at this late date. For example, I write for several agricultural papers, and have drawn attention to the meeting in Brantford, and it is difficult to get every one notified of the change. Personally I should prefer Buffalo; but whether at this date the best interests of the association will be subserved by changing, I am inclined to doubt.

R. F. HOLTERMANN.

Romney, Ont., Oct. 12.

WHERE SHALL THE NEXT NATIONAL CONVENTION BE HELD? A WORD FROM ONE OF THE EDITORS OF THE CANADIAN BEE JOURNAL.

SINCE our article on page 809 of the present issue was in type, we have received the following from Mr. F. H. Macpherson, which will explain itself:

FRIEND ROOT:—I was surprised, when I received the advance proof you were kind enough to forward, to learn that the change of the place of holding the coming International was being talked of, and that the item which I penned for the *Canadian Bee Journal* of Sept. 18 was being taken as a basis. Please take notice, that the item referred to suggested Buffalo as the place of holding the International for 1890—not for the one just upon us. I do not know whether it has been understood in this way or not; but if the article be read through to the end, there should be no mistake.

I must say that I am opposed to making any change at this late date. Dozens of Canadians have arranged to be at Brantford, who will not go to Buffalo, especially those from the eastern counties. The building in which the meeting is to be held is spoken for, and railroad rates are about settled, while all the other necessary arrangements are completed.

Again, the majority of the local Ontario associations have appointed delegates, and these—not over-affluent societies—have doubtless counted well the cost of sending their delegates, while an extra expense of \$3.00 or \$4.00 will probably be the means of keeping them at home. Then, too, the Ontario Bee-keepers' Association at its last meeting passed a resolution calling a special general meeting at Brantford at the same time as the International, and the president, vice-president, and directors (15 in all) were appointed delegates.

As to the membership, Dr. Mason suggests that it is none of our business where the meeting is held. By "our" I mean all Canadians, outside of D. A. Jones and K. F. Holtermann. It is a well-known fact that the great bulk of the membership each year comes from the vicinity where the annual meeting is held, and Canada will not be behind in this respect. As proof of my statement, take the Detroit convention: 68 out of 103 members were from Michigan, Ohio, and Ontario. If the association is international, surely Canadians have a right to an occasional meeting. But the greatest reason of all is, that the suggestion comes too late in the day. I trust that my writing will not be taken as presumption, as I am not a member, but hope to be.

F. H. MACPHERSON.

Boston, Ont., Oct. 10, 1889.

Well, now, friend M., may be I have put my foot in it. If so, I shall try to draw it out as gracefully as possible. Let's see: It seems to me that your original editorial is a little ambiguous, or, rather, it conveys pretty directly the impression I got from it. After mentioning the fact that you had invited your American friends to be present at Brantford, you insert a "by the way" clause, which seems to be somewhat of an after-thought to the preceding. The clause in question, and the one which gave me the impression that you desired to change to Buffalo for 1889, reads as follows: "By the way, would it not be mere justice to place the holding of the *next* convention at Buffalo?" The underscored word is mine. Now, the question hinges on the little word *next*. I can not get any other meaning from it than that you meant the *coming* convention, for the close of this year, 1889. I do not see how the *next* convention could refer to the year 1890, when there is yet a convention to be held in between now and then. The reasons you give for holding it at Brantford are good; but would not these delegates be willing to pay just a little more for the sake of the privilege of seeing the Falls in winter? and is it not a fact that some of the delegates are nearer Buffalo than Brantford? and would not the general expense be thereby somewhat equalized? I am still in favor of Buffalo, though I am quite willing to accede to the wishes of the majority of the members. As Prof. Cook says, we all desire the best good for the society.

ERNEST.

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HONEY-EXTRACTOR,
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A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There is a quiet but steady market for choice white comb honey at 14@16 in the jobbing way. Demand is fair from consumers and manufacturers for extracted honey. It brings 5@8 on arrival. *Beeswax* is steady, and in good demand at 20@22 on arrival, for good to choice yellow.

CHAS. F. MUTH & SON,
Cincinnati, Ohio.

Oct. 21.

ALBANY.—*Honey.*—Honey market easier under freer receipts, but we have no overstock as yet, and receipts in good shape and order sell well. Small-sized combs unglassed take the preference. 1-lb. white, 14@16; 2-lb. white, 13@14; mixed, 12@13; 1-lb. buckwheat, 12@12½, 2-lb. 11@11½. Extracted, dark, 6; light, 7½@8½.

H. R. WRIGHT,
Albany, N. Y.

Oct. 11.

BOSTON.—*Honey.*—Our honey market is in fairly good condition, but we are getting a little surplus of odd marks from Western New York, Michigan, and Wisconsin, and it is not arriving in very good condition and is very hard to sell. We quote fancy 1-lb. combs at 16@17; fair at 14@15; 2-lb. combs at 15@16. Extracted at 8@9. No beeswax on hand.

Oct. 21.

BLAKE & RIPLEY,
Boston, Mass.

COLUMBUS.—*Honey.*—Our market is in about the same condition as at last report. Only a strictly first-class article meets with any sale at 14@15.

EARLE CLICKENGER,
Columbus, Ohio.

Oct. 21.

ST. LOUIS.—*Honey.*—No change to note since our last. *Beeswax.*—Prime beeswax, 22.

D. G. TUTT GRO. CO.,
St. Louis, Mo.

Oct. 21.

DETROIT.—*Honey.*—The supply of comb honey is fully up to the demand, and selling quite freely at 13@15. Extracted, 8@9 in a small way. *Beeswax.*—23@24.

Oct. 22.

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MODEL B. HIVE CO., W. Phila.

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FOR SALE.—2000 lbs. of nice heartsease honey, in 1-lb. sections, 24 lb. cases, delivered free on board cars at Dixon, in good order, at 11½c per lb. This is nice honey, of good flavor and fair color.

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FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections, and 12-lb. cases, at 15c per lb. (100 lbs. or more). Also 60-lb. screw-cap cans of extracted clover honey at \$4.90 per can; 2 cans in 1 box, \$9.60. Safe arrival guaranteed by freight.

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18-23db

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To reduce our stock of glass tumblers and pails, we offer a special reduction for orders during this month only, and to those who order from this notice. Having an extra stock of packages of 100, we offer 10 per cent off on these, and 5 per cent on barrels. The following is the list as it appears in our price list.



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Nos. 775 to 778.

Oaken Bucket Pail.

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Number and Name.	Capac.	Price	Barrels.
No. 788, 1-lb. tumbler	10 oz.	3 28	2 50 250 \$5 30
No. 789, one pound tumbler	16 oz.	3 30	3 00 200 5 20
Nos. 788 and 789, nested.		6 57	5 25 200 9 00
No. 775, ½-lb. screw-top glass pail.	11 oz.	5 40	4 00 3 50 7 30
No. 776, small pound screw-top pail	14 oz.	5 42	3 75 200 6 60
No. 777, large pound screw-top pail	17 oz.	6 52	4 75 150 6 60
No. 778, 1½-lb. screw-top glass pail.	24 oz.	7 65	6 00 100 6 00
1-lb. Oaken Bucket pail.	10 oz.	5 42	3 75 200 6 60
1-lb. Oaken Bucket pail.	16 oz.	5 45	4 50 150 6 10

We want the room where these are stored, for other goods; and rather than move them we offer this reduction. Remember, 10 per cent on packages of 100, and 5 per cent on barrels, and no other discounts apply in addition to these.

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Vol. XVII.

NOV. 1, 1889.

No. 21.

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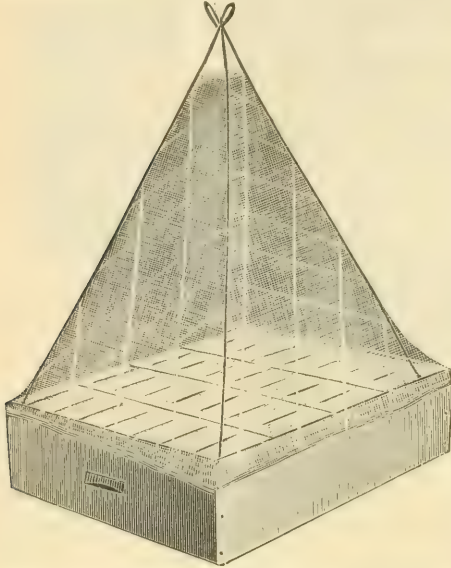
OUT-APIARIES, NO. XVIII.

HARVESTING.

WHEN extracting at an out-apiary it would be very convenient to have a house in which to extract, as you have been used to doing, perhaps, at home. Very likely, however, you will conclude that the inconvenience to the people will be more than the convenience to you. In a good season you may find little difficulty in extracting in the open air. But if you are not an old hand at the business, I warn you to be very careful about getting the bees to robbing. If a single bee gets a load from one of your combs you are likely to get into trouble. Have robber-cloths, and keep every thing you can covered up. If to-day you get along all right, with no appearance of robbing, try it the same way next time, only be sure to set your extractor in a different place, for in the interim some bees may have had a taste of the drippings that you left in the old place, and will be on the lookout for more. Have plenty of water, and keep every thing clean. Remember it's only when bees are busy gathering, that you can extract in the open air, and sometimes they gather only in the forenoon. Possibly it may not be wise for you to attempt extracting at all, without cover, unless you are a very careful person; and, no matter how careful you are, it is only sometimes that you can be safe to operate outdoors. At all other times you can use a tent, even if you do feel cramped for room. Perhaps you think I lay more stress on the danger of robbing than I should. I hardly think so, for it is even more important at out-apiaries than at home. At home, if the bees get to robbing when you are nearly through work in the afternoon, you can stop and finish the job the next morning; but you can't work that way when you are running several apiaries. Besides, it's worse to start robbing where other people live.

In harvesting comb honey at an out-apiary, allow me to suggest that it is quite important that you should be careful not to get robbing started, especially toward the close of the season. Oftentimes you will do well to manage quite differently from the home plan. It may be you find several supers of sections (remember, when I say super it may contain wide frames or what not), ready to come off just before you are through your day's work, and you are quite anxious to take them home with you. Give the super a heavy smoking before taking it off the hive, so as to drive down all the young bees; then after the super is taken off, one hand can make a steady application of smoke while the other plies the brush. Another way is this: After taking the super from the hive, having given it the smoking first spoken of, put it on the top of another super that is to be taken off, say on No. 21. In the same way you can pile them on No. 21 till it is as high or higher than your head, so you must get something to stand on to get at the upper one. When all are piled up in this way, load your smoker for business and play away on the top without a moment's cessation, driving the smoke down into every opening, and after a little while an assistant can take off this upper super with not a bee in it. But the smoker must keep at work while this super is being taken off, playing away on the one next under it, which has already been strongly affected by the smoke driven through the upper one; and by the time the assistant has disposed of the upper super, the next will be ready to come off, and so on. When you get down to the last one that is to be taken off, the bees will probably not all leave it so readily; and if you have another pile ready to take off, it may be best to put this last super on the next pile. Instead of putting the pile on a hive you may think best to start it on the ground. Usually, however, it is best to make these piles on hives and leave them till the next day you come. Then in the

morning drive down the bees tolerably clean, make a pile of supers on the ground, a hive-cover or something of the sort under them, and put on top of the pile one of the little tents already described in GLEANINGS.



DR. MILLER'S ARRANGEMENT FOR GETTING BEES OUT OF SUPERS.

Make as many of these piles as the number of your little tents will allow; for the higher the pile, the slower your bees will be in getting out. Go through the apiary and take off all that are ready, and put them in piles under the little tents, and by the time you are ready to go in the afternoon all will be clear. If any supers are taken off so late in the day that there is not time enough for the bees to get out, put them in piles on hives, and take them off the first thing when you go next time. Look out not to start the bees to robbing when putting your load on the wagon. If the bottom of your wagon-box is not bee-tight, lay cloths or newspapers on it, so no bee can get up from below, and keep every thing on the wagon covered up all the while with robber-cloths, tarpaulin, buffalo robe, or something of the kind. If, in spite of all your precaution, the bees are pretty thick about the wagon, after the load is on, draw it some distance by hand, hitch on with a jerk, and start.

Marengo, Ill.

C. C. MILLER.

No, doctor, you do not lay a bit too much stress on this matter of robbing. It is almost the only thing I am afraid of when I see new hands start in bee-keeping. Getting stung themselves, and learning some bitter lessons from sad experience, is a small matter comparatively, when we think of annoying the whole neighborhood. Again and again have I heard people declare they hate bees, and do not want to get within a mile of them, simply because somebody had left some honey around, or had left a hive open. Of course, the great outside world do not stop to reflect that the special annoyance may be only temporary. They take it for granted that bees are always vicious, and that their sole delight is

in inflicting pain on everybody around, without sense or reason.—There, doctor, there is another thing you did not show me when I made my visit. I did not see one of those little bee-tents.

DOORYARDS FOR THE BEES.

FRIEND BOARDMAN GIVES US SOME SENSIBLE HINTS IN THE MATTER.

“**E**D, get a shovel and come here, and I'll tell you about a job I've been thinking of this morning.”

The creaking of the foot-power grindstone about a minute later told that Ed had anticipated the nature of the work I had been thinking about, and was sharpening the shovel ready to begin.

“All ready! Well, now, I have been thinking about making some nice dooryards for the bees, in front of each hive, by removing the turf, or surface dirt, a little, just enough to make a smooth hard surface, and get below the grass roots so it will not grow again this season. About two feet square, I think, will be about right. There are a great many bees, in returning from the fields, that fall short in their flight, and drop down in the backyard in front of their hives, and sometimes at a considerable distance from home, and they depend upon walking in somewhat as A. I. Root does sometimes on his return from a bee-keepers' convention, when he fails to make connection, and gets dropped out five or ten miles from the Home of the Honey-bees.

“The number that fall short in their homeward flights is much greater during a honey-flow where they come home heavily laden. It is then, too, that their time is most valuable. Of course, the time of an individual bee is very insignificant. It would not balance the scales one way or the other in the weight of a large honey crop, which is, after all, made up entirely of little tiny drops brought in by individual bees. I have often watched them when falling down in this way in the grass, and have seen them struggle and scramble along over the innumerable obstructions in their way. Even though the grass is short and smooth, they spend a great deal of time, and make very slow progress. This kind of work looks like very poor economy for the bee-keeper, and it is.”

Now, Mr. Editor, when you get left a few miles from home, with business pressing, and you are anxious to get home with as little delay as possible, and decide to push on with the power nature has provided you with, does the kind of roads you have before you make any difference with you? I dare say it is the very first thing you think of. “How is the road?” more than probable you inquire. Now, suppose, instead of a smooth even road, you were dropped in some dismal swamp or jungle or windfall that you had to scramble through the whole distance. You would then be in much the same plight as is the tired bee that falls in the grass.

“There, now, Ed, that looks about right. I think I shall like that. I have tried almost every plan I could think of to keep the space in front of the hives in shape to accommodate the little fellows. I have not yet been quite satisfied with any of the plans I have tried. I have cut the grass, scalded it with hot water, salted it, have put ashes and vari-

ous other things upon it to keep it down. I have used sawdust about the hives; I have even strewn salt lightly over the yard to induce the cow and horse to feed it down, which they very soon learned to do at night, when the bees would not molest them. This plan, as simple as it may seem, has much to recommend it when it is convenient to practice it. It is worthy of a trial. Don't think your hives will be all upset. Your cow or horse will learn to be as careful about the hives as any one doing the same work. I have had sheep turned in to one of my out-apiaries at different times for several years. They are the most reckless of any animals I have ever tried among the hives, even more so than hogs. A sheep seems never satisfied to keep away from the bees. The hog needs only one lesson.

"Now, Ed, I'll go over to the office and get the mail. I shall not be gone long, as I am interested in the work just begun in the bee-yard.

"Why, this isn't going to be a very long job. You have got 2, 4, 6, 8, 9, 10, 11, done already. How much better that will be for the bees that fall in front of the hive than grass! How nice it would be to have the yard peeled all over just that way! Just wait a moment. I am half decided to have you make a clean job of it. To be sure, it will be quite a job; but there is no work particularly urgent at present, and I've long wanted to make this yard a model. Just you begin over there at the corner, between those two rows of hives, and see how much work it will be, and how it will look. I shall be back in a moment, as soon as I can take a look at the new mammoth wax-extractor. I declare! if we don't get different weather, there won't be sunshine enough to test it this summer. There has been nearly two weeks now that the wax has not melted enough to run. At this rate the moth worms will eat up all of my combs before they can be melted out. I will just wheel it out between the buildings in that open space, where the sun shines stronger."

H. R. BOARDMAN.

East Townsend, Huron Co., O.

Old friend, you have hit me exactly in the above. I have studied and experimented, and I am sure it pays to have a good doorway; but it is a harder matter than you think, to make one that will be permanent. It is not a very big job to take a sharp shovel and go over the apiary, say once in two weeks, in the growing season; but some way there are very few who do it. Sawdust is objectionable, as has been explained. White sand does better, but the weeds grow up through it. Not long ago I suggested sawed flagging. For our locality, pieces, say 15 x 20 or 18 x 24 would not cost very much. I think, however, that slate would be still cheaper, but the latter would be in danger of breaking if a heavy man like Doolittle and some of the rest should step on them; and I believe I would rather have the sawed flagging besides. Will some one who is in the quarry business please tell us about what it would cost? We will also make inquiries. Yes, friend B., it does make a difference with me whether I have a good road to walk on or not; and I think more about it now since I am getting well along in years than I used to. From the creek garden to the house there is a nice, smooth, well-trodden path, but it has a

good many windings. A great many times, when weary, I ask myself which I shall do—take a straight line for the house, over the soft ground, or go nearly twice as far to follow the hard well-trodden path. I believe it tires me less to take the longer route; and I am sure it is very poor economy to make our bees travel or take wing again when they fall around the entrances. Through California and Wisconsin I watched the apiaries to see what provision had been made for an alighting-place. A good many used boards; but by far the greater part did nothing at all; and where an apiary was literally choked up with weeds and brush, I knew beforehand that the owner would tell that it "didn't pay expenses." I don't believe I like cows or horses in an apiary, and I am sure I do not like rabbits, as friend Fradenburg has advised. The greatest trouble with rabbits is, that there are soon too many of them. I hope you will tell us more about that mammoth wax-extractor.

DOOLITTLE'S REPORT FOR 1889.

GIVING THE DARK SIDE.

A BEE-KEEPING neighbor happened in a few days ago, and, in speaking of the poorness of the season, he said: "You will not report this season, I suppose, owing to the light crop of honey which you have; for I notice that there are not many who go into print with a report unless they have a very large crop." I told him I should give my report again this year the same as I always had, for I did not consider it the fair thing for a bee-keeper to do, to tell of his large yields only, and then censure the editors of our bee-publications for giving only the "bright side" of apiculture, as some have been known to do, when bee-keepers gave only the largest yields, withholding a report at all other times. Only as reverses are reported equally with the large yields, can we get a true idea of the value there is in apiculture as a pursuit; and he who purposely withholds the dark side of any matter must be considered one who would purposely deceive. I am glad to know, however, that the most of those who report for our bee-papers are generally willing to give the dark as well as the bright side of bee-keeping.

The season of 1889 has been a peculiar one. The month of March, which, as a rule, is the most rough and unpleasant month of the whole year, in this locality proved to be the most calm and pleasant of any we have had so far, considering the time of year. This gave the bees which were outdoors an early start; and as April continued nearly as fine, high hopes were entertained for the season of 1889 as a honey year. Very few cold storms occurred up to May 20, at which time the bees had so advanced that some of the stronger colonies were thinking about swarming, they having queen-cells started while the weaker ones were fully as good as the strongest are usually at this season of the year. But, alas! the shortness of human vision is such that it can not foretell what the season will turn out to be; hence, right in the midst of our high hopes came the most disastrous weather for the bees that I ever experienced; for on May 20th came a cold rainstorm which kept the bees in their hives for a whole week, at the end of which it froze so hard that the bees in the smaller colonies were

obliged to contract to such an extent that much of the brood perished, while all of the colonies ceased breeding pretty much entirely. This weather continued to a greater or less extent together with much rain till June 12th, at which time the prospect of a honey crop was nearly ruined; for all know that it is the bees which hatch from the eggs laid by the queen about 37 days before the honey harvest, which procure the crop, if we are to have any. As our basswood (which is our main honey crop) blooms about July 10th, it will be seen that this almost entire absence of brood from May 20th to June 12th took away the bees which should have been the gatherers of our honey, so that, no matter how good the weather might have been during basswood, it would be impossible to secure a full crop. June 12th there came better weather, and the bees (which by this time were broodless, and many of them nearly honeyless) went to the fields to work with a will. The rainy weather had brought on the white clover so that there was a greater show of bloom than we usually have; and could it have come off dry at this time we might have obtained more than usual from this source; but as the weather still continued wet, little more was obtained than enough to feed the brood, which now multiplied very rapidly. The early spring brought out the basswood bloom earlier than usual, so that the flowers on the earliest trees opened on the 4th of July, but the bees did not seem to notice them much if any till nearly a week later. They now began to gather honey quite rapidly; in fact, they came in as heavily loaded as I have ever seen them, dropping short of the hive, and tumbling about in every direction, as they always do when getting honey very fast; but when it came to their storing it in the hives and sections, very slow work indeed was made, owing to the fewness of the laborers, and also to the thinness of the nectar, this last being caused by its raining nearly every day at some period during each 24 hours. The basswood bloom lasted for about three weeks, at the end of which time teasel gave a little honey for a week or so, when the honey season from flowers was over for 1889, for of late years we get no honey from buckwheat or fall bloom.

I now took off all of the sections, and found that the bees did not have half enough honey in the brood-apartment of the hive to winter them; for, owing to the slow way honey had come in, brooding had been kept up to a much greater extent than usual during July. I saw nothing ahead but feeding for winter, till about the 28th of August, when the bees appeared to be at work on something, enough to keep them from robbing, the yield increasing, till on September 1st they again dropped about the hives nearly as much as they did during basswood bloom. An investigation of the matter proved that this honey came from the leaves of the oak, elm, and hickory trees, growing in a large piece of woods about $1\frac{1}{2}$ miles distant, this being the first honey-dew honey ever obtained by my bees during the period of 20 years which I have kept bees. From this source, which lasted for about 12 days, the bees filled up their hives so that they had enough to winter on; and although I have some fears regarding how they will come out next spring, I have concluded to let them chance it, rather than go through the work of extracting, and feeding high-priced sugar.

After my sales of bees and queens in early

spring, I found I had 26 colonies left to begin the season with, and from these I obtained an increase of 18 colonies, which, with 4 colonies made by doubling up nuclei, gives me 48 to go into winter with. Besides the increase, I obtained 651 lbs. of comb honey and 103 pounds of extracted, or 754 in all, from the 26 colonies in the spring. This gives an average of 29 pounds to each colony, which is the lightest yield I ever obtained, if my memory serves me right. The comb honey I have shipped on commission, which is being sold at 17 cts. per pound.

G. M. DOOLITTLE.

Borodino, N. Y., Oct. 21, 1889.

I suppose we are not to understand, friend D., that 754 pounds was your sole income for the season's work. Quite likely your sale of bees and queens amounted to a good deal more than that sum. I presume we are to understand that the 26 colonies you mention were worked solely for honey, and did not furnish bees and queens to fill orders during the summer time. If so, then you certainly have had an exceedingly poor season; and, by the way, while I recommend selling bees and queens where the opportunity offers, as well as honey and wax, I feel pretty certain also that a traffic in bees and queens is pretty sure to interfere more or less with the best results in the way of honey. Where one has a large apiary or out-apiaries, however, very likely it would not pay him to fuss with the bee and queen trade at all, on the principle that it is better to do one thing well than to try to do too many things.

HONEY-EXTRACTORS.

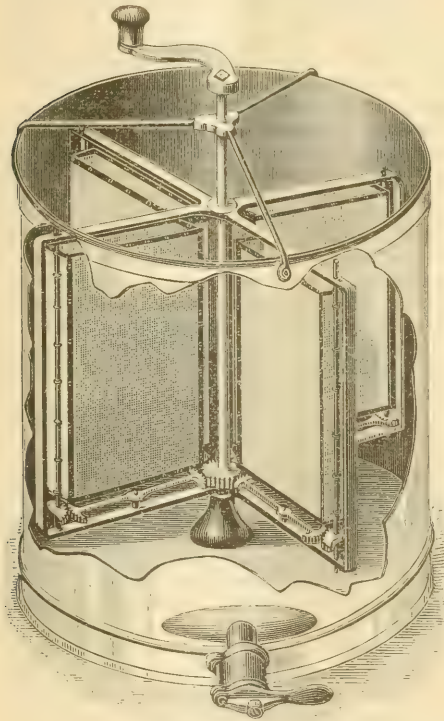
THEIR CONSTRUCTION; THE REVERSIBLE EXTRACTORS IN PARTICULAR.

HAVING tried nearly all kinds of extractors, from the most primitive two-comb up to an eight-comb reversible, I think my experience might be of some value to any one contemplating the purchase or manufacture of a new machine. My first extractor consisted of two tin boxes, each the length of my hive, 4 in. deeper and 4 in. wider, fastened to a wooden frame about 18 in. apart, with an axle in the center between the two cans, and a crank on top. Each can had a piece of coarse wire cloth, the size of the frame across the center of the can lengthwise, to keep the comb from the outside, and a screw cap on the bottom to let the honey out. I drew off the honey into milk-pans, and poured it through a cheese-cloth strainer into a barrel. Yes, and I believe I had more enthusiasm when running that thing, and extracting 200 or 300 pounds per day, than I have now with the best kind of an outfit, and extracting 2000 or 3000 lbs. per day.

I next tried a Novice. As most of you know its good and bad qualities, I will not mention them.

The next was a four-comb reversible. I found this a great improvement over the non-reversible, not only in saving time, but in saving combs; for with the former the comb sometimes presses into the wire cloth when you extract the first side; and, if tender, will often pull out of the frame when you pull it loose; but with the latter, the centrifugal force pulls evenly on the whole comb until it comes loose, and combs are very seldom broken.

Next my neighbor, Mr. Dudley, had a six-comb reversible made, with a ring around the axle, and a small chain running from the ring to the out end of each basket. The idea was, to pull up on the ring and make all the baskets turn at once; but it did not work. The baskets hit each other, and became tangled almost every time you tried to reverse it; so he took the chains off and reversed the baskets one at a time. Then my father-in-law, Mr. Wilkin, wanted an eight-comb reversible, and concluded to build it himself if I would help. I did so, and we put up probably the first eight-comb extractor in the country; but the baskets had to be reversed one at a time. We found that it required more force to throw the honey out when the combs made a large circle than it did when the circle was smaller, and the machine made the work harder than a four-comb. To illustrate: When I was a boy we made what we called a "whirligig" by boring a hole in the center of a plank and placing it on a post about three feet high, and driving a pin down



MCINTYRE'S REVERSIBLE EXTRACTOR.

through the hole in the plank into a hole in the top of the post. One boy would get on each end of the plank, and a third would push it around; if the plank was short, the boy pushing could make the other boys fly off the end of the plank in spite of all they could do to hang on; but if the plank was long, he could not throw them off. After trying all sizes up to eight combs, I would take a four-comb in preference to any other size, at the same price.

Then Mr. Stanley came out with his patent automatic reversible. My neighbor, Mr. Kenney, has one, and it is a well-made machine, but it is not quite so handy to put the combs in and take them out as it is when the side of the comb is toward you, and the baskets often hit each other in reversing.

Next Mr. Squire, of Santa Barbara, Cal., came out with a very simple arrangement for reversing the comb-baskets all at once. He made some hardwood wheels, about three inches in diameter, with two grooves around the edge, and fastened them securely on the axles of the comb-baskets; then put a screw in the edge of each wheel between the grooves, directly under the basket; then a wire was passed from one wheel to another, going around each wheel once. When it came to the screw it was wound around that to keep it from slipping. This acted like a belt; and when one basket was turned, all turned.

Mr. Hugh Warring, of this county, improved Mr. Squire's extractor by making the main axle loose, putting another wheel on it and passing the wire around this wheel also, which enabled the operator to reverse the comb-baskets without touching them by simply reversing the crank. This extractor worked well; the comb-baskets would reverse easily, and never touch each other; but the strain of stopping and starting all came on the wire, which would often break and give the bee-keeper the bother of having to stop and put another on.

One night, while thinking of this extractor, the idea popped into my head how to make an extractor without either wire or wood wheels, that would work the same as this one. Next morning I made a wooden model to see how it would work. The model worked beautifully, and some of my friends advised me to get it patented. I said, "No, I will never be a patent-right vender, and I don't want to go into the manufacturing business; besides, I have been greatly benefited by the ideas of others; and if some one should be benefited by my idea it will not grieve me a particle." But I wanted an extractor made that way, so I took the model down to Ventura and told the tinner I would let him have it on condition that, if he made the extractors to sell, he should give me one of them. When I took out the model and gave it a few turns, he said, "When do you want your extractor?" He made and sold them with the Stanley standing beside them. Most customers took mine because they reversed so much easier and nicer, and the baskets never touched each other, although Stanley's was much better made. The idea that struck me was to turn each basket from the center axle by means of a small lever running out on the arm that supports the basket. The frame that holds the baskets is loose on the center axle, but supported on the same by a collar shrunk on near the lower end. I inclose a drawing of the reversing gear, which will help to make it clear. The wheel in the middle is keyed fast to the main axle. The little half-wheels on the outside are fastened securely to the axle of the baskets. They should be two inches in diameter, and the one in the center four inches. The levers between, with the cogs on each end, should be malleable cast, and have a little hub in the middle where the pivot comes up through that they turn on. They vary in length according to the width of the comb to be extracted. As the gear stands in the diagram, the comb-baskets would be pointing to the center, or standing directly over the levers, and their inner edge should come about even with the edge of the middle wheel. J. F. MCINTYRE.

Fillmore, Cal., Sept. 2, 1889.

Friend M., you are perhaps aware that I made the first metal honey-extractor in the world—at least so far as I know. For sev-

eral years I was constantly experimenting on different distances from the center-shaft, also with an extractor to be turned with a crank directly on top of the shaft, instead of being connected with gearing; with extractors to hold three or four frames instead of two; extractors to be run by power applied to the bottom and on top; with a belt or strap to unwind, etc. Now, it is a little encouraging to know that my experiments agree almost exactly with yours. At first we made our Langstroth-frame extractors with the combs on end, standing quite near the shaft, that we might use a can of tin made of a certain size and thus get the extractor up cheaply. After we had made and sold a good many of these, however, I had an opinion that a larger can, with combs further away, would give better results; but as they cost more, I did not make many of them. I was somewhat surprised, however, to find that a four-frame extractor did not throw out the honey better, and also that it can not be started and stopped as quickly as the old-style two-frame extractors. After I had been making them some years, Gray and Winder, Murphy, Peabody, and others, made extractors where the can revolved instead of the frame. I decided at once that all these were a mistake. I did, however, test them quite extensively. The Peabody was so neat looking and so substantial, I invested in half a dozen of them; but they were so much more laborious, compared with our light cheap extractors, that they were soon laid aside. Now, then, whenever you revolve four combs, or get your two combs too far away from the center-shaft, or whenever you revolve a heavy frame to hold combs, you make a blunder. The arrangement that holds the combs while they are revolving should be just as light as is consistent with strength; and I do believe that an expert, with a two-frame extractor, will throw out more honey than an expert with any of the great big heavy machines. There is, of course, a saving of time in having a reversible extractor; but I should have this made just as light as possible; and I would have the combs as near the shaft as possible. Your point in regard to breaking combs because they sink into the wire cloth, I am sure does not apply to any of the extractors we make. If the wire against where the combs rest is of the proper size of mesh, and supported as all of ours are, no such trouble will be experienced. Very thick honey may make it a little more difficult; but we have had no such complaint for a good many years. After the comb has been forced into the wire cloth by turning harder than need be, a reversing device will pull the comb off, perhaps better than you can get it loose by hand. But very heavy combs and very thick honey should be extracted gradually—that is, throw out a part of the honey, then reverse, and finally finish the side you extracted from first. I saw a good many reversible extractors while I was in California, but I do not remember of seeing the device you illustrate. May be I saw it and forgot it, because I examined a great many ingenious devices in a very short time. I think very likely your idea of toothed

gearing is as simple as any thing that can be devised. Is it not more trouble, however, to put in and take out the combs with any reversible extractor? Now in regard to the Stanley reversible extractors: I do not believe I found a bee-keeper in any of my travels who is now using one of them. If there is any apiarist among our readers who extracts honey by the ton, year after year, who uses a Stanley extractor, let us hear from him. I do not wish to discourage the use of these—I simply want the facts.

THE GLASS-SNAKE.

HOW IT BREAKS IN TWO.

SO many reports in regard to these strange reptiles have come in, that we have not space for them all. We have, however, decided to give place to the following:

Friend Root:—We don't exactly see the connection between "jointed snail" and queen-bees; but having had some experience with this marvel of nature on the points for which you inquire, we take pleasure in adding our mite to your store of information. It was some years ago, when we were the "boy bee-keeper" of Hawkinsville, Ga., that, while out gunning one morning, we found a snake in the grass (literally) about 18 inches long. We set the gun-stock down on him, and the snake broke in two, thus discovering he was of the much-heard-of jointed kind. We amused ourselves in seeing how badly he could be broken up. We piled the remains on top of a pine stump, and returned to the scene about 10 P. M. We had probably killed him to too dead for a resuscitation. The pieces were all there, but warmth and vitality had fled.

We witnessed one night, only a few weeks ago, from a second-story window, what seemed the rather peculiar antics of a small gray fox that had wandered into the front yard. The animal appeared to be having a lively frolic all to himself in the moonlight. Suddenly he ceased, gazed carefully about him, and then stole quietly away. The next morning, such a snake as Mr. E. McIntyre described on page 777 was found where the sport ended. He was still intact, but his head had been "chawed." Should another specimen fall into our hands we will send it to Prof. Cook, for the tail is not "horny substance," and differs little, apparently, from any other snake's tail, beyond the body proper, except that it breaks readily anywhere the blow falls—at every joint of the vertebra.

We do not agree that the tail is or should of necessity be similar to the rattles of the rattlesnake, or devoid of life in itself, as there is told us of a lizard in portions of Africa and Australia that possesses the property not only of having its tail broken off without injury, but can even discard the same at pleasure when pursued. This tail retains its vitality for some while, and is usually active for several minutes. The pursuer, being attracted by the discarded member, the lizard scampers off and a new tail grows out.

As to the queen and drone of the honey-bees acting similar to Prof. Cook's observations on the bumble bee, we think there can be little question, as the drone must necessarily become powerless after copulation, before the queen finally succeeds in ex-

tricating herself. The drone's weight would then bear the queen down; but if this were not the case, she could not pull loose without some resistance to pull against. This resistance would be afforded by falling with the drone to some surface, and there getting rid of him, after the manner practiced by the bumble bee.

As our bees can fly out almost any time here, we are arranging to make a series of experiments concerning the question as to whether the drones from a mated queen are the pure children of the mother only. We have always been one of the doubters. We will send you the bees if we gather any evidence; at any rate, we will report progress if desired.

C. RYAN MITCHEL.

Ocala, Fla., Oct. 7, 1889.

THE JOINT SNAKES MADE OF FLESH AND BLOOD, AND NOT OF A BONY SUBSTANCE.

I read in OCTOBER GLEANINGS, p. 777, about joint snakes. You said that the part that broke off was a bony substance, without life or motion. Now, I think you are mistaken. I have killed quite a number of them in Iowa; and where they broke in two the body was composed of flesh. They do not unite after being broken; but if only a short piece is broken from the tail, the snake will live minus the piece. If you had been in California during the summer you could have seen "swifts," a small animal much like the lizard. It has four feet, and a long tapering tail. Now, if you should catch him by the tail, or strike the tail with a whip, off it comes, and it will show signs of life by wiggling about for some time. Now, this tail is not bony, but flesh and muscles.

F. A. BLISS.

Duarte, Cal., Oct. 11, 1889.

JOINT, OR GRASS SNAKES, A REALITY.

I have seen numbers of them. There is no hard, horny substance about them except the head, and possibly small scales. It may be that they are mostly tail, as is stated by Mr. McIntyre. I can't say; but I do know that they snap in two almost as readily as a glass tube, seeming tougher as they near the head. I have broken them in many pieces, and they remain so until decomposed. They show no blood, as we understand blood, when broken, but I have sometimes noticed a colorless, sticky exudation from the broken parts. The joint, grass, or glass snake, is a reality. I have seen him many times, and he is quite pretty. Ordinarily he would be called a garter snake, but he certainly is not.

J. M. SHUCK.

Des Moines, Ia., Oct. 5, 1889.

THE GLASS, OR JOINT SNAKE; HOW IT BREAKS.

Mr. E. McIntyre, in GLEANINGS, page 777, gives a good description of the glass-snake, except the length of the body part and the shape of the break joint. I captured one in Kansas, a few miles southwest of Emporia, and carried it to the house to show to those who had never seen such a snake. There I studied the anatomy of the reptile. It was about 2 feet long, about $\frac{3}{4}$ tail, which I broke in short pieces, and put them together. The break showed 3 dovetails on each piece—pointed, or miter shaped, as smooth as if done with a carpenter's chisel. The dovetails were about $\frac{1}{2}$ of an inch long. I wrote a description, and sent a drawing of the dovetailed or miter break to my sister, Mrs. Laura Henderson, in Pennsylvania. The short miter-shaped muscles were used in propelling the snake,

and looked nicer to eat than the interior of an oyster. There was no horny substance except the skin.

D. TYRRELL, M. D.

Toulon, Ill., Oct. 7, 1889.

You say you broke the snake apart and put it together again. Now, that is just the point I want to know about. If you put that snake together so he went off alive, tail and all, then I shall say again, that truth is a great deal more wonderful than fiction. I suppose, of course, that this glass-snake does not have a skin as snakes usually do. If so, how can he let his skin tear apart? Of course, you did not make that part "hitch" when you put him together again, did you? Here comes Prof. Cook to our aid:

Dear Friend Root:

I have already anticipated Mr. E. J. Baird's request, and sent an illustrated description of the whip scorpion, or "black grampus." I believe still, that the only harm that this animal can do is by its bite. Is Mr. Baird's account of the anal poisoning and switching any thing more than hearsay?

Now, friend Root, why did you not speak, when here, and I would have shown you those brittle snakes? There are two in our museum—the "blind worm," of Europe, which is really no snake at all, but a legless lizard, and the glass-snake of the South—*Ophisaurus ventralis*, which is also really a legless lizard. When these are alarmed they make their muscles rigid, and this breaks off their tails. All lizards, when caught, are apt to lose their tails in this way. Thus a person who runs a museum of lizards really needs to go into the retailing business. You see, then, that such animals do not break apart—they only lose their tails. I should like very much if some of my Southern friends would send me two or three of these glass-snakes. I will pay for all trouble and expense. I have several fine specimens from readers of GLEANINGS, received of late. I assure you that they are appreciated.

Agricultural College, Mich.

A. J. COOK.

Why, friend Cook, I should most assuredly have asked to see the glass-snake had I known you had one in the museum. With the number of testimonies furnished it would seem as though I ought to be satisfied, and yet I am not. The mystery to me is this: Call it a legless lizard, or whatever you choose, these tails are a part of the body, and must grow as the body does. Now, how could they grow without veins and arteries?

Since the above was put in type, we have received the following from Prof. Koons, of the Connecticut Agricultural School. As it corroborates the statements of Prof. Cook, and also gives us some additional very interesting information, we take pleasure in giving it to our readers, as we close the subject, at least for the time being:

Bro. Root:—I have been not a little interested in Mr. B.'s and Mr. McI.'s references to the grass-snake, in GLEANINGS for Oct. 1st. It is not a snake at all, but a retrograde lizard without feet, and is more commonly known as the glass-snake, so called because the vertebrae of the tail are so loosely articulated that they part at the slightest blow. Among scientists it is a well-known object of natural history, called by them *Ophisaurus ventralis*.

It inhabits the warmer parts of America, and is usually regarded as a snake by the masses, because of its general resemblance to that animal; yet on account of its structure it is clearly classified among the lizards. For example, snakes have no true eyelids; but this and other lizards have. Also the skeletal differences about the heads of snakes and lizards are clearly marked; and thus an extended list of characters can be given, which ally it to the lizards, and remove it from among the snakes, notwithstanding its general resemblance to the latter. This glass-snake inhabits the drier localities, where it often burrows in the ground, and is a harmless little creature. Bro. McL's discovery, that three or four inches of the head is all the body there is, is explained by the fact that it is a little lizard with a very long tail. There is an erroneous opinion somewhat common, that the pieces of the tail, after being broken off, often join the body again. This false notion is explained by the fact that in this, as in many of the lower forms of animals, lost parts soon grow out again. Starfish furnish frequent illustrations of this quality, as it is a daily occurrence to find them with one arm gone, but a small arm growing out to take the place of the lost member. I have one in my collection that had lost four of the arms, and the one remaining was reproducing the four lost members. The lobster also often furnishes marked illustrations of this ability to reproduce lost parts. A few years since, when engaged with others in marine researches under the auspices of the U. S. Government, we had in an aquarium one day a dilapidated old veteran lobster which looked as though he was the "lone survivor of many deadly conflicts." He had one very small broken leg, one broken claw, one stub of an antenna three-fourths of an inch long, and his tail damaged. Upon shedding his skin, as all crustacea (the lobster and crab group) do periodically, he came out perfectly whole, antenna, claw, leg, and tail, as good as new, and doubtless he was ready for the next "scrimmage" in Lobstertown.

PROF. B. F. KOONS.

Storrs, Ct., Oct. 7, 1889.

ALFALFA.

HOW THAT 20,000 LBS. OF HONEY WAS SECURED.

YOU ask me to tell you and the readers of GLEANINGS how I made that 20,000 lbs. of honey from 190 colonies, spring count. I should have made double that amount if it had been a good season, but we have some drawbacks; viz., 1. I moved my bees three miles in March after they had commenced to swarm; 2. When the honey season should have commenced, the army-worm ate all the bloom from the alfalfa as fast as it came, so that the first crop of alfalfa produced no honey, and we had to depend on the wild flowers for our first crop; but the second and third crops were good; the fourth was destroyed by a small grasshopper not much larger than a flea; but he was active, and destroyed the bloom as fast as it appeared; hence there was no honey from this source. The fifth crop is fair, and we are now taking it as fast as we can; and if nothing interferes we shall probably get 100 five-gallon cans more, all from alfalfa. The season has been so poor we have saved only about 85 or 90 swarms from 190 colonies.¹

Now, friend Root, this honey was all made from

alfalfa, and other kindred plants that were dependent upon irrigation for their existence. As before stated, I moved my bees in March, three miles, to a location where they would have 11 $\frac{1}{4}$ sections of alfalfa within one mile of the apiary; but in one mile another man sat down with 200 colonies, besides several small apiaries of 25 to 30 colonies; 2 $\frac{1}{2}$ miles north, an apiary of 200 hives; 3 miles N. W., an apiary of 300 colonies, so you see if my bees could have had it all to themselves they would have doubled the yield. Another drawback was that I had an inexperienced man to take care of them on shares. I think if I had had a good man he would have succeeded better, notwithstanding all our drawbacks. Why, it sometimes took him two weeks to go through one time and extract all the honey; and when the honey-flow is good they will fill their hives in five days. One season I extracted every third or fourth day alternately, and they yielded me 485 lbs. to the hive, spring count, and they will do it again when properly cared for. I want a good and experienced bee-keeper to come and take my bees on shares, and by that means it will be very profitable to us both. I hope by this means to succeed in getting a good man to come and go into the business where it pays.

Tempe, Ariz., Sept. 17, 1889.

J. L. GREGG.

Your communication is of more value, perhaps, than you are aware of. For years we have been asking for a report in regard to a honey-crop produced entirely from artificial pasturage, or, in other words, we have asked if there was in existence an area of cultivated plants that would furnish stores right through the season, for a whole apiary. Now, your report fills the bill for an apiary of 190 colonies — yes, more too. You say other apiaries also made good results from this one field of artificial pasturage, for, of course, alfalfa was unknown until the country was settled. I am so much interested in your report that I feel a strong inclination to make a trip clear to Arizona to see the thing done. Please tell us if you get large yields of honey every season from alfalfa. If you depend on irrigation, why should it not be a fixed fact every year? It is true, that army-worms and insects may spoil the crop; but when you talk about your fifth crop in a single season it seems to me you must be pretty near the bee-keeper's paradise. You spoke of an alfalfa field covering 11 $\frac{1}{4}$ sections—or, if I am correct, 1760 acres. I did not know there were 1760 acres, all in one piece, in honey-bearing plants, on the face of the earth—that is, cultivated acres; and this is not only cultivated, but irrigated. Why did not some one tell me there was such a state of affairs, when I made my recent trip to California? Besides, my youngest brother is near neighbor to you, if I am correct. Now, I wish that both of you would give me a longer letter of particulars. How often is alfalfa irrigated? Do they cover the ground with water as they do in California? What is the land, crop and all, worth per acre? With your warm climate, and no winter, what is to hinder having a steady flow of honey constantly the whole year through? for it would be an easy matter to have the alfalfa come so as to give constant bloom at least one part at a time. Can't you

answer for us that difficult question as to how many acres of honey-plants it takes to keep, say, 100 colonies of bees fairly employed?

BRANTFORD OR BUFFALO—WHICH, FOR THE NEXT N. A. B. K. A.?

DR. MILLER ARGUES IN FAVOR OF BUFFALO.

I HAVE just read what is said in GLEANINGS about the next convention. I am not just sure at this instant what its proper name is, but I am sure it is *not* "International." In spite of any preparations that have been based on its being held at Brantford, I believe that more good than harm would be done by changing to Buffalo. Reasons for this have been already given in GLEANINGS and in the *A. B. J.* Without looking the matter up, I do not know whether it would cost me more or less to go to Buffalo; but I know I would rather pay more, and go to Buffalo. I suspect many others feel the same way, both in Canada and in the U. S. Secretary Holtermann says, "Personally I should prefer Buffalo;" and is it not possible that so many others feel the same way that a larger number from Canada alone would go to Buffalo than to Brantford? It may be said, "Brantford this year, Buffalo next." If the convention is held at Brantford this year, would it be right to hold it 70 miles distant the next year? If it moves only 70 miles per annum, especially when so far to the north, I am afraid it will lose what little right it has to be called any thing but a local society, which right is none too great at best; for, as friend Macpherson says, "It is a well-known fact, that the great bulk of the membership each year comes from the vicinity where the annual meeting is held." So, change from Brantford to Buffalo this year, if enough favor it; but don't talk about holding it a second year within a distance of a hundred miles, unless you want to kill it outright.

Marengo, Ill., Oct. 19, 1889.

C. C. MILLER.

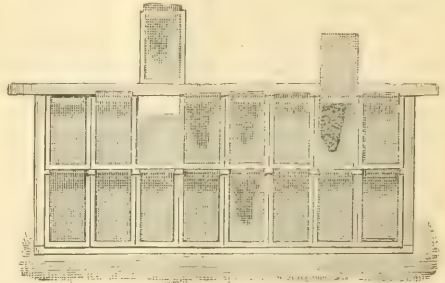
Thanks, doctor, for what you say. I had begun to feel as if I had wasted a good deal of "wind" for nothing, and, besides, had put the Canadians to no little annoyance. If I had not supposed that the *Canadian Bee Journal* had first urged such a change, the matter would never have been brought up. I still think that an outside attraction such as the Falls would very materially increase the attendance held at Buffalo. It makes our pocket-books feel a little better if, having invested so much, we can go to a bee-convention, and see one of the wonders of the world at the same time. It is on the principle of killing two birds with one stone. Many of us feel, when bee-journals cover the ground usually traversed at conventions, that it is a good deal to pay out for hand-shaking and apicultural fellowship, much as we value it. But if we can "take in" something else on the same car-fare, this money is gladly paid out. As I said before, I reiterate again: I would a good deal rather attend a national convention with a *large attendance* with some interruptions, than one *poorly attended*, with no interruptions. Still, for all that, I presume Mr. Newman's advice in the *American Bee Journal* of Oct. 16, that the matter be dropped where it is, is wise.

Later.—The last *Canadian Bee Journal* has just come to hand, and I find that it would not be according to the constitution of the society to change at this time. For this and other reasons, it were better that the matter be dismissed at once, and that, in the language of Bro. Newman, we labor faithfully to make the convention at Brantford a successful and interesting occasion. While I regret my action in the matter, I believe that the association will profit materially in the "extra advertising." It was with the best of intentions toward the Canadians that I proposed, or rather, as I thought, *seconded* the change to Buffalo. I did not for one moment doubt their interest in the association or their ability to give a right royal reception to the bee-keepers of the United States. If I carelessly interpreted Macpherson's original editorial, which perhaps I did, I beg pardon. I think too much of the rosy-faced, robust, large-hearted Canucks to merit their ill will. ERNEST.

MANUM'S NURSERY, OR QUEEN-HATCHERY.

FURTHER EXPLANATION, WITH AN ILLUSTRATION.

THE engraving of my little queen-cell protector or that appears in GLEANINGS, Aug. 1, page 629, has caused so many to write me, asking all about it — its size, cost, usefulness, whether a success, where it can be obtained, etc., besides the many samples called for—that I have thought best to give the readers of GLEANINGS a full description of the cage and nursery as I use it, that every one may make his own if he wishes.



MANUM'S QUEEN-NURSERIES READY FOR HIVE.

The accompanying cut of nursery will perhaps explain itself better, than words from me. I use a half-depth frame for convenience. It will be seen that this frame holds 16 cages. A full-size Simplicity frame will hold 36 cages by having them made $\frac{1}{2}$ shorter than those I use; but I should prefer to cut the frame down, and have only 2 rows, or 24 cages, as I find it convenient to have one nursery to contain cells of a certain stage of advancement, and another with cells of another age; and as I breed from queens in different apiaries, I like to have each set of cells in a nursery by themselves; hence I have a number of these nurseries in use.

THE CAGE, OR PROTECTOR.

This is a simple wooden box that I have made for this purpose. It is $2\frac{1}{4}$ inches long by $1\frac{1}{2}$ wide, by 1 inch deep, outside measure. The top end of the box is $\frac{1}{2}$ narrower than the bottom, to allow the

wire-cloth cover—or slide—to slide into the grooves made in the edges of the side pieces. I have thought of making them with wire-cloth bottom—or back—but I hardly think it necessary, the box being stronger as it is. The slide is made of wire cloth cut a little wider and longer than the size of the box. A piece of tin, the proper size, is used as a form to turn the edges of the cloth, that it may slide in the grooves easier than the raw edge would; and, besides, the slides keep their shape better by having folded edges.

The hooks which hold the cells in place are made by cutting tin points from a strip of tin $\frac{1}{2}$ wide. A representation of these points may be seen in GLEANINGS for Aug. 1, page 629. With the point of a pocket-knife, an incision is made in the center of the top end, and the tin point is driven through into the box, and the point bent up to form a hook on which the queen-cell is hung by the upper end of the cell; then the wire-cloth cover is slid in place, and the cage is ready for the nursery.

These cages, or protectors, can be furnished for 5 cts. each by mail; or just the bare box can be furnished by express at \$2.00 per 100. Possibly Mr. Root can furnish them cheaper.

THE NURSERY, OR FRAME.

This is an ordinary brood-frame, with end-bars cut shorter, so that two rows of boxes and center-bar will just fill the space; hence the end-bars should be $\frac{3}{4}$ long, as the center-bar is $\frac{1}{2}$ thick. This center-bar is kept in place by fitting it into grooves made in the end-bars—see engraving. For a back to this frame, an ordinary tin separator may be used. I use a wooden separator, as I have no tin ones. I use the nursery something after the Doolittle plan, though I place them not only in upper stories, but in any hive or nucleus I wish to, whether they have a laying queen or not. I find that the bees will not always feed the young virgin queens in these nurseries after the honey season is past; hence they should be watched at such times, and fed or removed as soon as hatched. I have hatched queens over and in full colonies for several years, and supposed everybody else did, though I did it on a different plan from this; but this arrangement suits me much better than anything I ever tried before.

I find that queen-excluding honey-boards are unnecessary for this work, as I have never used them, either for hatching queens or having queen-cells completed after being started in other hives. I have never had such cells torn down, nor have they ever, to my knowledge, caused a swarm to issue.

All honor to our good friend G. M. Doolittle for the many good points he has given us in queen-rearing, though I have never seen his new book.

Bristol, Vt., Aug. 21, 1889.

A. E. MANUM.

BEES, BEANS, ETC.

WHY THOSE BEANS DID NOT COME UP.

I SUPPOSE the beans you spoke of several times, as not doing well, did not grow because they had never thoroughly ripened. I remember when I was a boy my father always grew beans for feed for horses and hogs. Those intended for the horses were always kiln-dried, if not harvested well, or not quite dry; damp new beans being very injurious to horses. One time, in planting for the next crop we ran short of seed. After a

good deal of argument, pro and con, the last three-fourths of an acre was planted with kiln-dried beans. These last were up first, produced the best crop, and were three weeks ahead of the others at harvest. Does not that look as if a seed must be dry, to be ripe?

THE CLOVER BLOAT.

I remember my father, having a lot of cows blown with clover, though there was a man put to watch them. That was in the early part of the fifties—about 1854, I think. What impressed it on my mind was, they got them all into the barnyard as quickly as possible, and tied sticks in their mouths to keep them open, and all so treated recovered but one cow. She would not be caught, and was driven into the barn. The floor was paved with blue bricks, and was very slippery; and in trying to avoid being caught, the cow slipped down and burst.

SPEED OF BEES; AN INTERESTING CASE.

With regard to the speed of bees in flight: Some years ago, in England, I was out on an engine, that we had rebuilt, during her trial trip. A bumble-bee took a fancy to investigate us, and after looking us over on all sides it commenced making a circle around the smokestack, varying from one foot to three feet from it. He seemed to do it with the greatest ease, for several minutes, and then left us, to find himself six or eight miles from where he first joined us. We were going close on to sixty miles an hour. How fast was the bee going, when circling around the smoke-stack?

TO GET WAX OFF FROM UTENSILS.

The best way I know to get wax off from any kind of vessel is to warm them so as to soften the wax a little, then get some clean sawdust, and a coarse rag, and it's just fun to get it off. A teaspoonful each of soot and lime will be plenty to test for ammonia.

GEO. E. HAILES.

Lytle, Tex., Sept. 20, 1889.

Friend H., you have given us several things of a great deal of value. The result of that experiment with the beans corroborates exactly the experiment I gave, of planting beans just as soon as they were of full size, but not dry. Now, is there not here a point for our experiment stations to settle? Will our good friend W. J. Green please tell us whether garden seeds are all of them better to be kiln-dried? Since you suggest it, friend H., I recall quite a number of instances that seemed to indicate that seeds must be thoroughly dried, as well as thoroughly ripened. Our garden seeds are in a room warmed by steam, and so near one of the radiators that I have sometimes feared they would get so exceedingly dry it might be hard to moisten them up quick enough to have them start real early in the spring. Your fact, however, indicates that they are just right as they are.—I am glad to have you corroborate the remedy recently given for clover bloat.—If a bumble-bee flies considerably more than a mile a minute, how fast may a honey-bee go if it tries? Surely it can get ahead of its big country cousin.—If lime causes soot to give off ammonia, then soot is, without question, valuable for manure. I know it has been many times recommended, but I was slow to accept it, because I could not see any reason why. Will friend Green also tell what he knows about the value of soot as a manure?

APHIDÆ—EGGS AND NO EGGS.

ARE THERE ANY INSECTS WHICH REPRODUCE THEIR SPECIES WITHOUT EGGS?

IN GLEANINGS of April 1st, page 265, Prof. Cook has a short article on house-flies. In it he says: "House flies do not breed in winter, and all insects come from eggs." And, again, at the close of the article he reiterates the latter statement: "All insects come from eggs," and adds: "Any observations that seem to contradict these statements need to be repeated."

I agree with him in regard to what he says about house-flies; but when he says that "*all insects come from eggs*" it seems to me that that statement is a little "too sweeping." I always had the idea that they all came from eggs, until within the last year or two, when my own personal observation forced me to come to the conclusion that there must be some exceptions to that rule. In studying the subject to find out what others thought, I found some items which I think might prove as interesting to others as they have to me.

Here is an extract from Zell's Cyclopedia, in regard to the particular family of insects which I was studying.

APHIDÆ.

A family of hemipterous insects which have the body short, and furnished at the hind extremity with two little tubes, or pores, from which exude minute drops of a very sweet fluid, called honeydew, which is eagerly sought after by ants. The genus *Aphis*, or plant-lice, inhabit all kinds of plants, the leaves and softer portions being often completely covered with them. The *Aphis humuli*, or hop-fly, is in some years very destructive to the crop; and it is to this cause that the variations of the hop-crop, from year to year, are mainly due. The young are hatched in the spring, and soon come to maturity; and, what is remarkable, the whole brood consists of wingless females; and, what is still more remarkable, these females bring forth living young, each female producing 15 or 20 in a day. These young are also wingless females, and at maturity bring forth living young, which are also all wingless females; and in this way brood after brood is produced, even to the 14th generation, in a single season, and this without the appearance of a male. But the last brood in autumn contains both males and females, which at length have wings, pair, stock the plants with eggs, and then perish. Reaumur has proved that a single aphid, in five generations, may become the progenitor of about six thousand millions of descendants.

Reaumur was a French philosopher, a member of the Academy of Sciences, a distinguished inventor, and the author of "Memoirs Illustrating the History of Insects." He died in 1757. According to this account of the aphid, these insects are produced from eggs, and also produce young in a living state; the latter more than the former, and in multitudes. Those of us who have plants, and know from personal experience what a pest these "little varmints" are; how rapidly they increase, and how almost impossible it is to get rid of them, are quite willing to believe that they do not wait to be hatched, but come in battalions, ready for work. You can take a clean plant, one that you know is not infested, and place half a dozen of these wingless females on it; then set it away where it will not come in contact with other plants, and do not disturb it for a few days. If you examine it in two or three days I think you will be surprised at the swarms of aphid, of various sizes, which you will find. If you have the same experience we have had, you will find them ranging in size from the smallest specimen imaginable, up to those fully grown. Look at

your plant daily, and you will find young insects the first day, and every day.

Ipava, Ill.

ANNA B. QUILLIN.

The above was sent to Prof. Cook, who replies as follows:

ALL INSECTS COME FROM EGGS.

I have read Miss A. B. Quillin's interesting communication, with no small interest. The facts which she gives are indeed facts, but they do not warrant her conclusions, as I will show. It will be profitable right here to describe not only the three kinds of sexual reproduction, but also the three kinds of reproduction.

The first kind of reproduction, called reproduction by fission, is simply division. The animal breaks apart, and, presto! there are two animals in lieu of one. This is the only reproduction in the lowest branch of animals, like the curious amoeba—the one-celled animals, or the protozoa. Reproduction by fission is also confined to the lower branches of the animal kingdom, though in all but the protozoa it is attended with other kinds or modes of increase. Thus, the beautiful fresh-water hydra, though it reproduces by both the other styles of reproduction, yet if, even by accident, it be cut in two, or even sliced up, each part becomes a perfect animal.

The second kind of reproduction is by gemmation, or budding. A bud develops on the side of the animal, finally drops off, and there is a second animal. Gemmation is also confined to the lower branches of animals. It is well illustrated in coral animals, or polyps. It is always attended with sexual reproduction, and sometimes with fission.

Sexual reproduction is reproduction from eggs. Sometimes these eggs develop with no outside vivifying influence. This is parthenogenesis, or agamic reproduction—reproduction without males. Usually the eggs must receive sperm-cells—must be impregnated, or they come to naught. The eggs are produced in special organs—ovaries—and the sperm-cells in other special organs known as testes. In some cases these two kinds of organs exist in the same animal, and we call such an animal monœcious, or a hermaphrodite. Usually—always among insects and vertebrates—the sex organs are in distinct individuals, and we call such animals bisexual, or dioecious. Even animals as high as snails and angleworms are hermaphrodites. Often the highest animals like some insects appear to be both male and female. This, however, is only superficial. The animal is really either male or female.

Now, while all higher life, even to man, comes from eggs, this appears not to be the case; and it is not strange that our good friend thought I had overstated the matter. There are three kinds of sexual animals. First, the oviparous. These animals lay eggs which develop outside the mother animal, from nutriment contained mainly in the egg substance. Most insects, fish, reptiles, and all birds, are oviparous.

Second, the ovoviviparous. These animals differ from the oviparous only in that the eggs hatch inside the mother, and so the young are brought forth alive, and not as eggs. The nutriment, as before, comes from the substance stored in the egg. Here we find the plant-lice referred to, which are also agamic, the sheep-ticks, several two-winged flies, sharks, and some snakes.

Lastly we have viviparous animals, which include man and nearly all mammals—there are two

exceptions among Australian mammals. These two are oviparous. In these animals the eggs hatch within the mother, and furnish but a very small part of the nourishment for the embryo, or pre-natal animal. In this case a curious and very vascular organ brings the blood of the mother and fetus, or yet unborn, in close contact, and thus the fetus gets blood, oxygen, and whatever is necessary to its growth and development. Thus we can say in truth that all insects, vertebrates, and many other animals, come from eggs. A. J. Cook.

Agricultural College, Mich.

My good friends, I am exceedingly obliged to both of you. Our good friend Anna Quillin explains what I have alluded to on another page in regard to the green fly; but I confess that I was never aware that they multiplied at such an enormous rate. Why, it is almost fearful to contemplate. Your explanation gives us a glimpse of the wonderful intricacy and complexity of your chosen line of work—entomology. If I ever had an inclination to think that I knew pretty much all there is to be known in that branch of science, your answer has thoroughly cured me, and it makes me feel like taking a very low and humble seat while I repeat the words of the Psalmist, "How manifold are thy works, O Lord! in wisdom hast thou made them all."

THE COST OF MOVING BEES.

THE RAMBLER REPLIES TO DOOLITTLE, ON PAGE 666.

THE Rambler read Bro. Doolittle's article in GLEANINGS for Aug. 15, p. 666, on the cost of moving bees, and was placidly happy to see Dr. Mason get punched in such fine style.

"Why, yes," said we; "what a preposterous idea for a doctor to advance!" No wonder he is baldheaded. We wonder if he runs loose, and boards in a schoolhouse, as the boys say. Well, we smiled along down the column until the Rambler was hit. We "riz right up," shook our fist in the air, and, said we, "It's an outrageous imputation. We never said we could prepare a swarm, load it, go five miles, unload, unprepare it, all in four minutes. What does Doolittle take us for—a telegraph, a telephone, or a streak of greased lightning?"

After this effervescence we calmed down, and finally grasped the situation. We immediately leaned back in our chair, put our feet on top of the bureau, and went into a clairvoyant condition, and saw Bro. D. prepare a swarm for moving. First he got a milking-stool and calmly sat down by the side of a bee-hive; then that little ornamental pile of stones was carefully laid on a newspaper (wonder if he keeps them varnished); shade-board, cover, quilt, and several other fixings were also carefully removed; then each frame secured, ventilation provided, entrance closed, etc., then the milking-stool and man were transferred to the next hive for another half-hours' work, 25 cts. an hour. No, sir, we wouldn't work that way for \$1.00 an hour. If we did our hair would all come out, and we should be as baldheaded as Dr. Mason.

Now, to get a colony ready real quick, use a closed-end frame. The Rambler uses such a hive. It is provided with a stand that can be used as a ventilating-rim for wintering or moving bees. Put on

the veil, take a smoker, an extra bottom-board and rim, approach the hive, lay the bottom-board on the ground, upper side down, place the rim upon it. This closes the entrance. Place the hive carefully upon the rim; pass a strong cord—several having previously been tied in the form of a loop—around the hive; take a few twists in it, with a stout stick, and the job is done, and quicker than we have been writing it. We then take up the bottom-board and rim that have just been vacated, and proceed to the next hive. We can fix a hive in this way in the spring in two minutes; but if prepared in the swarming season it would take longer; but even then the work could be so systematized as to be done rapidly.

Now, in answer to Bro. D.'s 25-cent-per-hour query, I would say yes. I will work for 25 cents per hour in any bee-yard in the country, for one, two, or three months; 25 cents per hour for each day of 10 hours means \$65 per month. But the bee-keeper making a specialty of the business must reckon his pay so as to cover the entire year. At 25 cents per hour it would amount to nearly \$800. Now, I wish to ask how many bee-keepers having 200 colonies, and making a specialty of honey production, have, during the past five years, averaged \$800 per year.

The Rambler's experience has been somewhat varied. One year in the five has been an \$800 year, while the rest have been nearer \$200; the average has been nearly \$400, or 12½ cents per hour.

The study and close attention I have put upon the business has but little bearing upon the wages. My knowledge of bee-literature, anatomy, and botany in all their relations to honey production will not enable me to get a greater yield of honey than is obtained by the illiterate man who has learned to manipulate his colonies to advantage.

We think Bro. D. makes the mistake of ranking bee-keeping as a profession. The professional man knows every morning when the clock strikes the hour for his labors to commence, just the routine to be followed; his pay is assured, so much per year. His study and preparation have been with the knowledge that he is to occupy just such a position all the year round. If the institution fails, he is sure to find a position in another.

If the professional man is a doctor, and he is skillful, he is sure of good paying patients wherever he may locate.

To be ranked as a profession, bee-keeping must get beyond the many uncertainties that surround it; and while I am a bee-keeper, I must be controlled in the matter of wages by the pay I would receive by laboring for those who surround me, and we will guarantee that 75 per cent of the bee-keepers of to-day are drawn from the ranks of the farmers; and should they give up their pursuit, they would drop back into those ranks, accepting the pay of a farm hand, or tilling their own farm, as they might be favored by fortune. Even at present the Rambler knows many bee-keepers who, after the busy season is passed, hire out as farm hands at \$1.00 per day, and are glad to do it; and if the seasons continue as they have for the past few years, many not having the education for other pursuits will have to resort to sawing wood, carrying the hod, or feeding pigs.

We think Bro. D. and a few others are putting the business of bee culture upon stilts, too high for it. It will not bear this elevation. The great mass of honey-producers have to work hard for small

pay; and how to lighten the labor and increase the pay is a problem that gives much food for reflection to the

RAMBLER.

Good friend Rambler, we might have had an opinion that you were one of the slow and easy sort of people, as rambler's are quite apt to be; but if you can fix a hive in the way you describe, in two minutes, I guess we shall have to give it up. Have you timed yourself by the watch, or do you guess it would be about a couple of minutes? I agree with you in regard to wages. There is another point you have not yet touched upon. Those who get 25 cents an hour are usually located in the city, where expenses are far different from what it costs for board and lodging on a farm. Nowadays one is almost looked down upon if he looks for a hotel where he can get accommodations for only a dollar a day. Now, one who has to pay about a dollar a day for board certainly can not hire out for the wages paid to farm laborers. The average farmer gets board and lodging for perhaps less than 25 cents a day, therefore he can afford to work at a low price. Whenever I get back from one of my trips I always feel an additional degree of satisfaction with both bed and board at home. We have just what we want to eat at home, and a good bed to sleep in. Our meals do not cost 50 cents apiece, nor does a good comfortable bed cost half a dollar, or two dollars or more if you take a Pullman sleeper. Give me a farm or the suburbs of a country town, rather than the city with all its privileges.

EXHIBITING AT FAIRS.

CORNERING UP THOSE WHO PERSIST THAT COMB HONEY IS MANUFACTURED, AND MAKING THEM RECANT.

OUR fair passed off week before last. I was successful in capturing all the premiums pertaining to honey and bee-keepers' supplies, comb and extracted honey, and first and second on display of hives and fixtures. I had the two-story chaff hive; the one-story chaff hive, with the Simplicity top and also without; the Simplicity portico hive with all its combinations; zinc queen-excluders, crates, T supers, etc. But the greatest novelty I had on the fairground was the extractor. It created more queer expressions than all the other stuff I had. Some people would call it a washing-machine; some an ice-cream freezer, others a machine to manufacture artificial honey, and there is just where the fun would come in sometimes. Some would contend that artificial comb honey could be manufactured, and then out would come a pack of the \$1000-offer cards. One smart Alec from Iowa, who happened to be at our fair, jumped me heavy. He said there was a man who lived 1½ miles from him who followed it for a living—kept bees, though, but sold hundreds of pounds of manufactured comb honey. I let him go on till he got about to the right place, then I went for him with a vim. I had a good crowd around, and I went for him with cards, etc., till he crawled clear out. I explained to him, with a sheet of foundation in my hands, how it was made, its uses, etc., till he just confessed that he believed that was the kind of stuff the man in Iowa was

making. I have worked off a great prejudice against extracted honey in the last three years, and can sell my crop of it at the price of comb—from 15 to 20 cts. per lb.

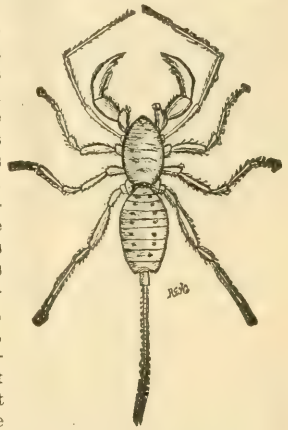
LEWIS HOCKETT.

Fairmount, Grant Co., Ind., Oct. 3, 1889.

THE WHIP SCORPION.

PROF. COOK TELLS US SOME MORE WONDERFUL THINGS.

A SUBSCRIBER for GLEANINGS, S. C. Corwin, Sara Sota, Fla., sends me a very curious animal which he wishes me to name and describe. This I am glad to do, and to send a good drawing, made by one of my students, Mr. H. E. Weed, as the animal is not only a curiosity in itself, but is very rare in the United States. I believe this one species is all that comes within our limit; and this is found only on our very southern border. It is more common, I think, in Mexico. This is the "whip scorpion," or *Thelyphonus giganteus*. The figure gives half the natural size. The name "whip scorpion" is given because of its long lash-like tail. Its striking resemblance to the true scorpion explains that part of its name. The scientific name, *giganteus*, is easily explained, and is very appropriate. By the eight legs we are sure that this belongs to the



sub-class *Arachnoidea*, or spider group. Its jointed abdomen removes it from the true spider order, and also from the mites. Its long maxillae, or palpi, places it with the harvestmen, false scorpions, and true scorpions, in the order *Pedipalpi*. Translated, this word means foot-like palpi. These palpi are the large organs just in front of the first pair of legs. In the true scorpions and little false scorpions (chelifers) they present claspers, or forcep-like pinchers, at the end. This is true in a less degree in the whip scorpion, as is seen in the figure. These whip scorpions are easily told from true scorpions, as the long lash-like tail takes the place of the horn, or sting, of the true scorpion. Thus these animals are harmless so far as this part of the body is concerned, while the true scorpions can give a poisonous sting, which is often reported fatal to man, though it is probable that this is exaggerated.

The friend who sends this specimen asks if it be true as stated, that the tail can do fatal damage. This is another case like that of the tomato larva, where man's nonsensical fear has led to gross deception. Neither the lash of this animal nor the horn of the tomato larva is in the least harmful. The long front legs are quite remarkable in the whip scorpion. As will be seen in the figure, these front legs are nearly twice as long as the others. In this group of animals the jaws are called *chelicerae*. In these, as in true spiders, there is a poison apparatus connected with the *chelicerae*. As I have

often stated in GLEANINGS, few if any of our northern spiders can injure man by their poisonous bite. I do not know whether the same is true of this animal or not; but I suspect it may be.

Like all of the arachnoids, or spider group, this whip scorpion has only simple eyes. Of these there are eight. Two of the eyes are close together, far in front, while the other six are in groups of three each, further back and close to the side of the *cephalothorax*, as the head-thorax is called. This head-thorax, unlike the abdomen, is not divided into rings, or segments. The harvestmen (grandfather gray-beards) are the only members of this order that are common in our Northern States. These are the little animals with very long legs that always point toward the cows with these legs. This is a veritable truth, as the legs point all ways. There is one family in this order—the *Solifugæ*—which is very predaceous. One species from California, which I have illustrated in my Bee-Keeper's Guide, is known to kill bees. This is a species of *Datames*. So far as I know, this is the only species of the order that is specially interesting to bee-keepers, and I doubt if that one is ever numerous enough to do much harm. A. J. COOK.

Agricultural College, Mich., Oct. 7, 1889.

Old friend, it is exceedingly gratifying to me to find that you are read up and posted on all these matters as fast as they come up. Even the glass-snakes, grampuses, and scorpions, have already been investigated by careful, trained, and experienced intellects.

AT THE VERMONT STATE FAIR.

EDUCATING OLD FOGIES IN REGARD TO THE HONEY BUSINESS.

THIS year the Vermont State Fair Association gave a more liberal premium on apianian products than ever before. This is due to the never-tiring energy of Mr. J. H. Larrabee, secretary of the Vermont Bee-keepers' Association; consequently a larger display of honey, wax, bees, and supplies, was exhibited than I had ever seen at our State Fair; and I must say that the display of honey was an honor to those who made the exhibit.

Mr. R. H. Holmes, president of the State Association of bee-keepers, had a very fine display of both comb and extracted honey. His comb honey in 1-lb. sections was arranged in the form of an American flag, representing Mr. Holmes' Red, White, and Blue apiary. The emblem referred to was some 8 feet long by 4 or 5 wide. The red stripes were strips of wood painted red, placed at a proper distance apart to admit 1-lb. sections, which formed the white stripes; and in the upper corner, sections of honey were inserted in place of stars to represent the thirteen original States. This was fastened to a beautiful white staff, and suspended in the hall, over his large exhibit of comb honey in shipping-crates, extracted honey in various styles and sizes of glass jars and tumblers, beeswax, foundation, bee-hive, etc.

Mr. J. H. Larrabee's display of honey was not surpassed by any, as he had a very large assortment of beautiful comb honey in various sizes and styles of shipping-cases, which were arranged in a very tasty and attractive manner. I have seen a great deal of honey in the past 20 years, but I must

say that I had never seen a nicer lot of honey than that which Mr. Larrabee had at our State Fair. He also exhibited a fine lot of extracted honey, together with a Stanley extractor; also smokers, uncapping-knives, etc. Although the above-named articles attracted much attention, nothing seemed to be more attractive, or call out more comments, than did Mr. L.'s observatory hive of bees. I will say nothing about them, further than that they took the premium, although there were other bees on exhibition.

Messrs. Drake & Smith had on exhibition a full line of apianian supplies, together with a full line of their beautiful mailing sample boxes, which can not be surpassed in beauty or workmanship. These also took the first premium.

The show was a success in every respect, and I am sure that every bee-keeper who visited the fair must have felt proud of the display.

Your correspondent was much amused at the comments of the people as they approached the apianian department, having been left in charge of Mr. Larrabee's exhibit while he took a stroll about the grounds; and to show you, Mr. Editor, how ignorant some of our Vermont people are (only Vermonters are so, I suppose) about bees and the bee-business I will mention a few comments as I now remember them.

First person:

"What is that in those tumblers, Mr. M.?"

"It is extracted honey."

"Is it pure honey, are you sure?" at the same time giving me a peculiar smile, signifying a doubt.

"Yes, I'm sure that 'it is.'"

"What is it made of?"

"The bees gathered it from basswood blossoms."

"Did the bees put it in those tumblers?"

"No, they store it in the hive, and we then extract it."

Whereupon the method of extracting was explained to a large crowd that had gathered about us, to the entire satisfaction of the lady, who purchased some of the honey—at a good price.

Second person:

"Is that real bee's honey in those jars and boxes, sir?"

"Yes, it is."

"Well, a friend back here told me to come this way and I would see some of the new style of honey, such as they make of sugar and starch, and I suppose this is it. My husband keeps bees. He has six stands; but I know that *real* honey is not as white as this is; and, besides, I don't see any place where the bees can get in those boxes. We get our honey in the fall, when John kills the bees. We live over in the east part of the State. My husband says there is a man over here in this part somewhere that feeds his bees sugar, and makes lots of honey."

"Do you know the man's name?"

"No, sir, I do not remember."

"Is his name Manum?"

"Oh, yes! that is the name."

"Well, madam, that is my name, and I think I am the man you refer to."

"Well"—with a slight blush on her face—"do you feed sugar?"

"Yes, most certainly I do, in the fall, when the bees are short of honey for winter stores; but *never* for the purpose of having it stored in boxes, as

it would not pay to do so; and, besides, it would not be honey; it would be nothing but sugar."

She then turned to her boy, and said:

"Here, Johnny, come here; here is the great bee-man your father told us about. Have you written a book on bees, sir?"

"No; I never have, nor do I intend to; but here are some I will give you. They are published by men who know all about bees. Here is the *American Bee Journal*, published weekly, and here is *GLEANINGS IN BEE CULTURE*, published twice a month, and here are also two others, published monthly. You may take them home to your husband."

Third person; looking at a sample of foundation, and remarking to a friend:

"Oh! I know what that is. It is that yellow stuff the bees have on their legs. The bee-men make wax of it, and weave it into this kind of cloth for the new bees."

Fourth person, to a friend:

"Oh! look at the wasps."

"No, Jane, they are flies, and those things are a new kind of fly-trap. Oh, yes! I see now."

"Oh! look at that yellow stuff there. It looks like wax."

"No, Jane, it is soap, made into large cakes to show, and that there is also soap made into thin sheets so we can roll it up with the clothes to boil."

Fifth person, an old farmer:

"Are you the great bee-man? is your name Manum?"

"My name is Manum, and I keep bees."

"Yes; wal, I thought so, seeing all this honey and bees. Wal, I want my boy to learn to keep bees, for I hear you make lots of money with your bees, so I bought the boy a hive of bees last spring, but they have not done well this summer. He has watched them every day, but they don't swarm. That's why he did not come to the fair. He is at home watching the bees. They are all on the outside of the hive. It is so full of honey he says they can't get in, so he tried to put them in an empty hive, but they don't stay there, and they sting him terribly. I hear you charm your bees so they don't sting. Would you mind telling me how you charm them? I want to help the dear boy all I can."

"Yes, sir, I can tell you how I charm mine. I do it with one of these smokers. They are only \$1.00 each, and here are some bee-papers. Take them home to the boy, and subscribe for one or more of them, and let the boy study and work at the bees."

Sixth person, a practical bee-keeper:

"How do you do, Mr. Dodge? How are the bees doing with you this fall?"

"Well, Mr. Manum, I hardly know what to say. They are storing lots of honey, but it is dark-looking stuff, and I feel a little suspicious that the bees will not winter well on it. What is your opinion about it?"

"Well, I feel somewhat suspicious myself, and I thought I would extract the stuff from the center combs and feed 10 or 15 lbs. of sugar syrup to each colony, just enough to carry them through the coldest weather; and I did secure extra help last week, and started in with three extractors; but we did not work long before I changed my mind, and decided that this business would injure the bees more than the dark honey would; and even if I lose a few colonies by leaving it in, the loss may not be more than the expense of extracting and feeding

would be; so I have decided to pack them as they are, and run the risk. I have kept bees nearly 20 years, and never before have they gathered fall honey enough to winter on; hence I have had no experience with it. I have written, and sent samples of this honey to several parties who have had experience in wintering bees on such honey, and they write me that they would not hesitate to winter their bees on it, so I am going to try it, hit or miss."

A. E. MANUM.

Bristol, Vt.

Your decision in regard to running the risk, in your last paragraph, would accord exactly with my experience in this line. When bees have got poor dark honey—even honey-dew—sealed up and stored, just as it is wanted for the bees, I would let it be and take the chances rather than to throw it out and feed something else. If just before they go into winter quarters there is room in the combs where this dark honey has been used up, and we fill that room with sugar syrup, with a good heavy feed, so as to make every thing full all through the hives, it has never, in my experience, done any harm. In fact, I have had reason to think that the extra sugar syrup given them had many times come in so as to save them from the consequences that might ensue from using the poor dark honey just in the depth of winter, when a long cold spell happens to come.

POISONOUS SNAKES AND INSECTS OF THE SOUTH.

SCORPIONS, GRAMPUS, ETC.

IN compliance with the request of friend Walker and yourself (see page 769, Sept. 1st GLEANINGS), I contribute my mite. In regard to snakes, I would say I was born and raised about 50 miles north of New Orleans, La., and have lived here over two years. I have rambled over the woods on foot, both here and in Louisiana a great deal, being very fond of hunting, and I can confidently say I have seen more poisonous snakes in one week in Louisiana than I have seen all together since living in Florida. We have a good many harmless black snakes. I came across only one ground-rattler, and one of the large species, a small one, about 2½ feet long. A neighbor of mine, while out in the woods about a mile, killed a large rattler about 5 feet long. These are the only two I have seen here. I have killed two or three coach-whips here, but not one of them showed "fight." I have killed a few water-moccasins, here, but none of them showed fight until wounded. They would all run and try to get away. Large rattlesnakes are said to be quite plentiful down on the islands about 25 or 30 miles below here. A man living here killed one down there that measured nine feet in length, and had 20 rattles on him. As to the "grampus," they are also found on these islands. We have none up here. I have seen one or two dead ones, brought up from there. I inclose you a clipping from the *Bartow Informant*, a paper published something over 100 miles above here.

WANTED—A NAME.

One day last week we were shown an insect peculiar, we believe, to this portion of the country, and which, as far as we can learn, has no scientific name. It is known in Florida as under the various

names of "mule-killer," "scroncher," and "grampus," but is not mentioned in any book of natural history which we have been able to examine. A specimen, sent for name to the proper authorities in Washington, only elicited the names above mentioned. It is an insect about two inches in length, with huge mandibles, resembling those of a lobster, and long, pointed feelers, which might easily be mistaken for a fourth pair of legs. But the business end of the creature is represented by a slender terminal appendage which is held, like that of the scorpion, over the back. The sting from this is most severe, but not, as there seems to be a general impression, fatal. The insects burrow in the ground under rotting logs, and one can not be too careful when obliged to handle such things, lest they become suddenly and most unpleasantly acquainted with it. A specimen can be seen at Look's drug store.

I will make a trip to the islands shortly, and will endeavor to secure specimens of the "grampus" to mail you and Prof. Cook. I will also mail you specimens of the scorpions, a small stinging insect which hurts about as bad as a bee sting. They are found under the bark of dead trees, in lumber-piles, and trash of any kind. They are also very fond of hiding between hive-covers and the enamel cloth. I have been stung by only one. It is amusing to see how the mother carries her young. They all cluster on top of her back, and she carries them around until they are large enough to take care of themselves. I should have said I have killed several of those joint-snakes in Louisiana that would break all to pieces when struck, but I don't remember of ever seeing any blood. I have never seen one here. As to the specimens of snakes, I can not furnish any of them, as I don't like to handle them.

YOUNG G. LEE.

Charlotte Harbor, Fla., Sept. 6, 1889.

Thank you, friend Lee. Prof. Cook has told us a little about the grampus in this issue—see pages 849 and 856.

THE VAN DEUSEN METAL CORNER, AGAIN.

DECIDEDLY IN FAVOR OF 1½-INCH SPACING.

ON page 513 I stated that I was not fully satisfied in regard to the 1½-inch spacing of the Van Deusen reversible frame. Theoretically it seemed to me that, when such frames were full of brood, there would be a good deal of spare room between the combs, and that, when the bees should begin to use the brood-chamber for a store house, as they are sure to do when honey is coming just a little too fast for brood-rearing, and not quite fast enough to start them in the sections, there would be a broad area of elongated cells in the upper part of the frames that would ultimately cause me trouble. In this instance, practice has fully confirmed the theory. At the first appearance of honey in excess of the daily needs of the bees they proceeded to draw out the upper margins of the combs unless I happened to be on hand to reverse the frames often enough to keep brood constantly near the top-bar. This kind of vigilance may be all very well for the "fussy" bee-man, but it doesn't do for me. If I have to reverse all my frames every three weeks while honey-boards and supers are on, I will either go out of the business or adopt friend Shuck's hive, support it on two forked stakes, and attach a crank to it so that I may turn it over whenever I happen along. The honey-flow in my locality was barely sufficient to send the most energetic colonies into the sections, while the

laggards remained below and filled the brood-chambers to their utmost limit, crowding the queen until there remained for her merely an elongated oval in the center of each frame. In the course of time, the honey that had been placed below the brood by reversing was consumed; but the bees refused to cut down the elongated cells to a proper depth for brood-rearing, and they remained empty at a time when I could ill afford to have them so. Combs at the sides of the hive, full of honey from top-bar to bottom, are quite a good deal too thick for brood-combs. Since I use a contracted brood-chamber containing only 800 square inches of comb, I can not afford to have many square inches of elongated cells. It must all be brood-comb, and I see no way to obtain it and keep it so except by crowding the combs close together. One of my correspondents says he works his combs spaced 1¼ from center to center, and meets with no trouble except where there is drone comb. That is a little too close to suit me, but I want to be placed on record as being decidedly opposed to wide spacing. I have in my yard a dozen hives that are 14½ inches square, inside. They take a frame 13½ inches long and 10 inches deep. Two years ago five or six of these hives were left with nine frames—the rest with ten. This season not one of those nine-frame colonies went into the sections, while every one of the ten-frame colonies made a record in the supers. They were all populous colonies, and I could see no reason why those with nine combs were not in the sections unless it was because they had both store room and loafing room in the brood-chamber.

Aside from this one objection that I have treated thus at length, I think the Van Deusen metal corner beyond criticism. It works as well with an 8 inch frame as with the 7-inch; and when one learns how to handle it there is hardly as much danger of killing bees as with the suspended frame. I will not reiterate its good points, but simply state that, after thorough test, its mechanical workings have met my highest expectations. But its width must be reduced to 1½ inches, or I shall have to abandon it, much to my regret.

THE IOWA HONEY CROP; THE NON-READING BEE-KEEPERS CUTTING DOWN PRICES.

So far as I have been able to learn, eastern and southern Iowa has had an unusually heavy crop, while the western part of the State has had a virtual failure of honey, but plenty of increase. Now comes the exasperating part of the story: Iowa could easily have disposed of her entire crop at home at prices ranging from 15 to 20 cents per lb. for comb honey, and extracted at proportionate prices, had not the producers in the eastern part of the State gone daft at the sight of their own very modest crop. They seemed to think that, because they had obtained a little honey, the whole country was deluged with it. We in the west, with our one-fifth yield, were recovering a little of our lost ground by supplying a fair demand at 20 cts., when, without warning, we were flooded with honey that the grocers bought at 8 and 9 cts. per lb.—choice white clover and basswood in 1-lb. sections, all in splendid condition. Every one of these producers might just as well have had 12½ cts. as 9. All that was required was gumption enough to read and digest the reports in the bee-journals and the bulletins of the honey-producers' exchange. I have no sympathy to waste on them, but I greatly regret the shock they have given our market. The Iowa

honey crop is now mainly in the grocery windows, and will be pretty well cleared out by Christmas. After that the bee-men who have held on to what they produced will be sure to reap their reward.

Audubon, Iowa, Oct. 17, 1889.

Z. T. HAWK.

Your reasoning is good, and seems to be sound; and if in repeated practical tests it works as it has with you, it will prove a most important matter, especially in the matter of comb honey. I have worked hives with 11 frames instead of 10, in an ordinary Langstroth brood-chamber, 14½ inches wide. The combs had to be very exact, and those that did not contain brood had to be very thin. I presume likely, however, where we wish to crowd the honey into supers, 11 frames would be too many; therefore a dummy of one or more chaff-cushion division-boards would probably be an advantage.—We have seen something of the cutting-down of prices by the non-reading bee-keepers; but I think, friend H., this matter will correct itself in time. People are becoming better and better informed every succeeding year; and our county fairs are a great factor in getting people acquainted, and in getting them posted.

A LETTER FROM CHINA.

BEES UNDER THE PROTECTION OF A CHINESE INN.

FRIEND ROOT:—Last spring, while on a tour with Dr. Whitney, we stopped for dinner at a Chinese inn. On its right-hand side, facing out, was a bedroom, the front of which had sliding boards that came to within about four feet of the ground, thus making, when the boards were taken out, a broad window of the front. Even with the bottom of this window, a wide shelf had been extended out into the street, and the space below it inclosed with boards extending to the ground. Just under the shelf, at the inner corner next to the door of the inn, a stream of bees was pouring out and in from two cracks, one on each side of a board. The outer crack was quite wide; but the inner one, for only an inch or two at the top, was wide enough for bees to crawl through. The bees were all coming out at the wider crack, and, with but few exceptions, going in at the narrower one. I was interested in their docility; for though a number of persons were standing around, and continually getting square across their track, they made no objections. It was a real Chinese scene. The men went their way, the bees their way, each without noticing the other. As in several other cases like this, when I asked how they got the bees, I was told that they had come there of themselves. The query rises in my mind, Are Chinese bees more fond of human dwellings than are other bees? I thought last week I was going to have a swarm come to me like this, but they went to a drygoods box that Mrs. Whitney had set up, instead of coming to a nice Simplicity hive right from the "Home of the Honey-Bees."

POISON OF THE CENTIPEDE, AND THE USE THE CHINESE MAKE OF IT.

The Chinese are no chemists, and don't understand that the fangs of a snake or the nippers of a centipede can secrete poison from blood that contains no poison, and so they use the whole body. There is no reason for thinking that the centipede

taken internally has any virtue as a medicine. The Chinese think that, because tigers are so fierce and strong, eating their blood will make soldiers tiger-like; and I have several times seen men going about with a tiger's skeleton, peddling the bones by the ounce for a tonic.

ABOUT THOSE WASPS WHICH STUNG THE COOLIES SO UNMERCIFULLY.

As to our letting those poor coolies get stung, the whole thing was so sudden that none of us four, i. e., the Englishman, Scotchman, etc., got our wits together before the coolies were among the hornets. As I ran, I had thought, "How are our chairs to get past this? and won't it make trouble for passers by?" But I supposed that the coolies had seen the whole thing, and did not dream that they would come running after us as they did. I had been in China only a few weeks. When men, not used to bees, are attacked by angry wasps, they are not apt to see what is happening behind them; and when at a safe distance I turned and saw the other three still running, and the coolies rushing up from the other side, it was too late to stop them.

CHINESE SUPERSTITION; A DEMON.

As I was writing on the above, in came the cook, saying, "To-day they say, 'A demon! a demon!' Two of the stone-masons were down at the small river catching the duck that got away this morning, and one of them is drowned." Hurrying to the place, which is nearly half a mile away, I found that the body had not been recovered, and began to strip to swim to the place where the man had disappeared; but the Chinese exclaimed, "There's a demon in there!" All the more, of course, I swam and waded about the place (but I can't dive). The bottom of the stream was full of large angular boulders from the cliffs above. I found nothing, and neither did a boat which soon came up. Fear of the water-demon made the Chinese rather inefficient; but just before dark the body itself drifted down to shallow water and was recovered.

Now, just a few minutes after that man sank, three men on a long narrow raft of small timbers floated slowly past, and were entreated to stop and try to rescue him; but they would not. This was not heartlessness, but superstition—fear of the water-demon, which, they believed, had seized the man; and when that boat came, the first thing the man on it did was not to search for the body, but to chase and try to kill the poor duck, the "demon duck" I heard it called, which had been the innocent occasion of the misfortune. Yes, there was a demon there, the demon of superstition. I sometimes say to the Chinese, "You are greatly afraid of demons, and all the time are giving them free access to your hearts."

THE PHILOSOPHY OF THE FLYING OF INSECTS AND BIRDS EXPLAINED.

Why should the flapping up and down of a bird's wings propel it forward? Many of us have seen a boat propelled by working an oar back and forth at the stern, and all our ocean steamers are driven forward by a screw revolving in a plane at right angles with the course of the ship. All three kinds of propulsion—wings, sculling oars, and screw propellers—are different modifications of the same thing, the inclined plane. Did you ever notice one striking thing which characterizes the wings of all flying things, whether bird, bat, or insect—namely, that, while the stems of every thing else in nature are placed centrally, wings are always more or less

one-sided, with the shaft in or near the front edge? As a consequence of this, when the wing descends, the back edge turns up; and as it ascends, the back edge turns down, and thus always presents an inclined plane to the air, which, as it sweeps up and down, propels the bird forward. To illustrate the way the wing works, take a small stick about ten inches long, and slit both ends in the same direction, to the depth of about four inches. Then take two pieces of stiff writing paper, each about $3\frac{1}{2}$ inches square, and fasten one, by one edge in each slit, so that they will project on opposite sides, thus: Now stick a pin in the center of the stick, perpendicular to the plane of papers, and, taking this between the  thumb and finger, hold the toy either face upward or downward, and swing the hand up and down. It will spin around like a windmill, and it will always turn in one direction; i. e., away from the free edges of the papers, no matter in what direction the hand may be swung.

The Chinese at Foochow have a scull for propelling boats, the sides of which are too high for rowing. It is a sweep a little concave on the under side; and near the center, a hollow fits a short round-headed pin, which projects from the edge of the stern, and forms with it a ball-and-socket joint. The scull extends down into the water at an angle of about 45° ; a rope is fastened tightly around the upper end, and tied to a hook in the deck below. The boatman grasps the end of the scull with one hand and the rope with the other; and as he pulls and pushes back and forth, the one-sided strain from the hand on the rope turns the blade of the sweep now this way and now that, to the proper angle, as it plays back and forth in the water. It is a wonderfully simple and effective device; and in this matter of making it self-adjusting by applying the force a little to one side instead of directly in the center, it is just like a bird's wing. I have no authority for this theory of a bird's flight except my own observation; and if any one has a better one to propose, I should be glad to hear it.

Shaowu, China, Aug. 12, 1889. J. E. WALKER.

We are much obliged to you for your exceedingly vivid illustration of the effect of superstition. The poor heathen left the drowning man, to chase after an innocent duck. Now, the saddest part of it is, that such ignorance and superstition are not altogether confined to heathen lands. A milder type of the same malady exists in almost every neighborhood. Listen to the conversation of ignorant and uneducated people—people who do not read the papers—and you will hear more or less of it.—I am exceedingly obliged to you for your kind explanation of the philosophy of the way in which birds and insects fly; and I confess that the thought never occurred to me before. Why, you have even given us an idea of a windmill that would run in the same direction, whether the wind blowed on the back side or front side, without any vane to turn it around. In regard to insects, I can readily understand from your explanation how the movements of the wings should propel the bird or the insect forward; but I do not exactly understand why it should cause them to rise, unless the head be elevated a little higher than the tail; or if the tail be bent downward at an angle while the

wings propel forward, this would cause the body to rise; and I think I now understand why a hawk rises with comparatively slow flapping of its wings. It seems a little funny that I should have to go to China for a scientific answer to so simple a question.

INTRODUCING.

GIVING A QUEEN TO A COLONY AT ONCE.

THE queen arrived all right, and I am very much obliged to you. You sent a small circular with the queen, telling how to introduce her, by the Peet process, to a colony of bees. I have lost queens the very same way you give directions to introduce. I will tell you how I introduce a queen, and I will warrant you will never lose one. I do not make a colony queenless until I get the queen I am going to put in. I take the cover of a Langstroth hive, and set it down on the ground, and put two small blocks under two corners of the cover, to raise it up so the bees can pass under. I then lay a paper down on the ground in front of the cover, and commence to shake the bees off from the frames until I come to the queen. I then cage her, if I want to save her; if not, I pinch her head off and then I keep on until I get all the bees off the ten frames in front of the cover. The bees will run under the cover, and cluster. Take the frames the bees were on, and put them in the hive and put a cloth over them, so the brood won't get chilled; then pick up the cover, the bees have clustered under, and give it a hard knock on the ground over the paper. Then take a small sprinkling-can and give them a little sprinkle of water. Open the cage the queen is in, and drop her in the pile of bees. If the bees go to fight her, give them another sprinkle and they will be glad to let her alone. The cover must be set down where you had it before, so the bees can run under and cluster. The bees and queen will be hanging to the inside of the cover. Take the cloth off from your brood-frames; now pick your cover up that the bees are under, and give it a knock over the frames very hard, to knock the bees on the frames; put your enameled cloth on, and cover. Set your hive where it was before, and I will warrant your queen will be laying in a few hours, if she was a laying one at first.

You may think this is a great deal of trouble; but I can do it in three minutes. Is this not better than to wait 48 hours? and even then you may lose your queen; and you will have to wait three days before she commences to lay. I united two colonies together that had good laying queens, and put in that imported one you sent me last Thursday. She is laying, and all right. I have introduced 20 this fall the same way, and have not lost one.

Buffalo, N. Y., Sept. 30, 1889.

F. M. JONES.

I hope you will excuse me if I remind you that, although you have introduced 20 queens without loss, you are very likely to have a great many losses with the next 20. The plan you give is old, and has been thoroughly tested. Another thing, it would be nothing strange if nearly all the 20 you mention would have received the queens all right had you just taken out one and put in another. One fall, when we had some queens to destroy, because they were hy-

brid (this was long ago, before there was a market for hybrids), we experimented with them by swapping. We opened two hives at the same time, and traded queens, picking them right off from the combs, and putting the others right in their places. I was greatly astonished to find that the greater part of them went right along to work in the new hives just as well as in their own. This may be astounding to a good many. We tried it in good weather, when the bees were peaceable and quiet. I believe this can be done safely in the majority of cases; and this fact accounts for the great number of processes for introducing queens. The inventor of these processes often feels sure that he has made an important invention, simply because he has introduced a good many queens by his plan and had no trouble. One more instance: Neighbor H. once had a very prolific hybrid queen that he did not value, simply because she was a hybrid; therefore he for quite a time practiced moving her from one hive to another in order to get said hives filled with eggs and brood. He just set her right on the combs without any caging, and she was thus moved from hive to hive for quite a time without injury.

QUEEN AND DRONE IN COPULO.

VALUABLE TESTIMONY BY AN EYE-WITNESS IN THREE CASES.

PROFESSOR COOK asks for further proof that queens while in copulo drag the male bee along the ground. I have been a close observer of the busy bee since I was a boy of 12 years. It is nearly 33 years since I had my first swarm. I have witnessed the mating of but three queens in all that time.

In 1883 I gave a mature queen-cell to a small nucleus of about 100 bees. With so small a nucleus I could more easily see the queen go out and return, and could witness her maneuvers better. On the eighth day after emerging from the cell she came forth arrayed for her wedding-trip, about 4 p. m. She went through the general maneuvers to locate her home, then flew away. I could follow her with the eye for some time, as she hovered over the apiary. In eight minutes she returned without accomplishing her purpose. Next day she came forth at 2 p. m. There were thousands of drones flying at this time. She slowly circled over the apiary a while, about 15 feet high. Three or four drones followed. They finally clinched, and gradually settled to the earth, dropping into a piece of sweet corn in the garden. I was there as soon as they dropped. The queen had clung to a fallen corn-stalk, while the drone was trying to get away. They finally separated, the drone dying instantly. I went back to the hive, and in about two minutes the queen returned, with the drone organs attached. The bees on the alighting-board spread their wings in glad delight that she had returned. I gave them two frames of hatching brood, and two quarts of baby bees. In five days I opened the hive to see how they were prospering. The queen's body was distended to an enormous size, but not an egg had she laid. She seemed to try hard. I caught her and held her between some cotton batting, and gently pressed on it. Her lower extremity grad-

ually distended, and I could see a small gummy substance, which I removed very carefully with a pin. In seven days I looked again, and the hive was full of eggs. This was a daughter of the imported queen I bought of A. I. Root the same spring.

The next season, as the prime swarms came off I would take them in three or four days afterward to an out-apiary just four miles away. I noticed where the hives had stood containing the queens of the imported stock. Many bees came back with their legs full of pollen, but no bees from other strains of Italians came back. That convinced me that the newly imported stock was stronger of wing, and had been nearly to my out-apiary after honey before being carried there.

Again, this past season, 1889, I was passing a hive, No. 29, which contained a very prolific queen one year old. What should I discover but two bees slowly settling downward, going over and over? When they got on a level with my face I saw it was a virgin queen and a drone. The queen was trying with all her might to gain the entrance of the hive, and the drone was going the other way with all his might. The queen being the stronger, she drew him down to the alighting-board. She grabbed on with her feet, crawling toward the entrance. They then broke apart, the drone dying instantly. I supposed I had lost my queen in 29; but on opening the hive, not an egg was to be found—all sealed brood. The old queen was there, but her body was uncommonly distended. I caught her and pinched her head, and opened her body. It was filled with a yellowish fluid. She would never have laid any more, as I had kept one several years ago in the same condition. In due time the young queen commenced to do her duty.

Two days before basswood ceased to yield honey, as I was passing a hive I noticed a large bee trying to fly from the alighting-board; but every time she rose two feet in the air, down she came again. It proved to be a virgin queen. Her wings were too short to carry her body. They were perfect in every way, with the exception of being shorter than the wings of a virgin queen usually are. She would get perhaps four feet from the hive, and crawl back into the hive, and immediately come out again and try again to fly away. I watched her maneuvers for two days. I then thought of a plan to have her fly and not get scared by handling. I made a cone of wire screen around the hoe-handle, a foot in length. I plugged up one end, and tied it to the tip end of an 18-foot cane fish-pole. At two o'clock, when thousands of drones were flying, I gently dropped her into the cone and quickly raised it high in air, and kept watch of the tip of the pole. In about two minutes she took wing and slowly circled over the apiary, gradually settling downward. When within nine or ten feet of the ground, several drones rushed after her and clinched and immediately dropped to the ground. I was on hand instantly. The queen and drone were in a seemingly deadly embrace. After two or three minutes they tore asunder, but the drone died instantly. The queen I returned to her hive, and in due time she filled her hive with brood. I had supposed this hive had a fine queen; but on opening it not an egg could be found nor sealed brood; every cell was full of honey. I removed combs of honey and gave empty combs. The old queen must have been gone some time; no knowing how long the

young queen had been trying to take her wedding-trip; but by elevating her in the air she finally succeeded.

J. R. REED.

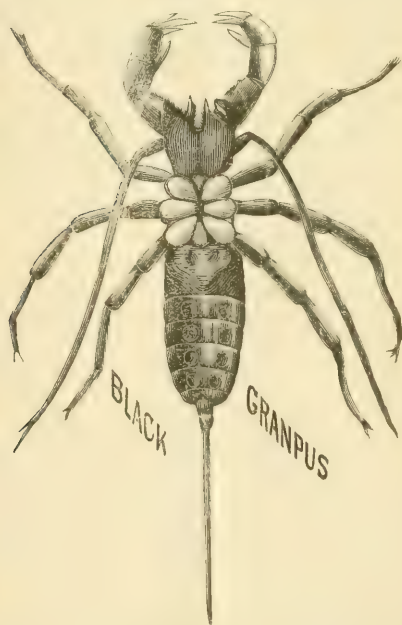
Milford, Wis., Oct. 7, 1889.

You give us some very conclusive facts, and some very *important* facts also. Your last experiment reminds us of the way we fussed with virgin queens at the time when there was such an excitement about artificial fertilization. I have tossed queens up into the air, when their wings were poor, hoping I might be successful, as you were with your fish-pole; but your queen could almost fly, and you gave her such an elevation that it succeeded, I presume by accident. I believe we have had reports before of results strikingly similar, but none quite so direct and positive as those you give.

A FLORIDA BUGBEAR.

POISONOUS INSECTS: BY ONE WHO HAS BEEN AMONG THEM.

THE deadly black grampus, referred to by your West Virginia correspondent in your issue of Sept. 1, page 709, must be a terrible fellow. He is variously called "scorpion," "whip scorpion," and in this region they are called "mule-killers." He is not a handsome beast, and has a bad reputation. Native Floridians, both white and black, generally regard its sting as deadly as the fangs of the rattlesnake.



It has a caudal appendage, needle-like in appearance, about two inches long, that is thought to be its deadly sting. The entire length of a good-sized specimen is about six inches. The palpi, or feelers, are much enlarged by a claw at the extremity, much like that of a crab or lobster. Its color is black. Its abdomen is prominent, like a large spider's, but much longer; and when disturbed or attacked it emits an acrid and offensive odor. It is

quite abundant in this region, and I think it is common in all the warmer parts of the State.

It is said to inhabit the southern part of Texas as well as Mexico. Its scientific name is *Thelyphonus giganteus*. It is allied to our common scorpion, *Buthus Carolinianus*, which also has the enlarged feelers and crab-like claws, and probably because of this resemblance it is erroneously called a scorpion. I had been at work upon our homestead several weeks before I saw one. In turning over a rotten log we found him. I was duly warned by my assistant.

"Look out, boss, that varmint's deathly pizen. They call him mule-killer, but he is a reg'lar man-killer. If he stings you, you die in two hours."

But being of an inquiring turn of mind I decided to investigate the "varmint." I did not at once pick him up in my fingers. He was an ugly-looking customer, and seemed well armed at both ends. Being touched with a small stick, he at once faced the enemy, elevating his feelers and opening his pincer-like claws, ready for battle, at the same time emitting an acrid and offensive odor. I next held him down with the stick, which he tried to grasp with his claws, but made no use of its sting but to keep it in an elevated position. The outcome of the matter was, that the terrible *bear* proved to be a harmless *bug*. The common scorpion is also much of a bugbear, as many believe its sting is fatally poisonous. It has a sting, and uses it at every opportunity; but its sting is less serious than that of a bee or wasp. It is very painful for a few minutes, but does not swell, nor become inflamed.

The grampus is an insect-eater, and a particular enemy of the cockroach, the great pest of the Florida housekeeper, and it should be regarded as a friend rather than an enemy. By this mail I send you a specimen about two-thirds grown. I hope it will reach you safely. Perhaps I should say, I have been in Florida fourteen years, and am very familiar with these insects. I have killed many scorpions, but never a grampus, purposely, until the one I send you. I have often been stung by scorpions, but never could coax a grampus to use its sting. Indeed, the poor fellow doesn't seem to know that he has a sting. When viewed under a microscope of moderate power, the structure of its tail is clearly seen. It is composed of joints, in appearance much like a scouring-rush, and covered with scattering hairs.

JAS. H. WHITE.

Island Home, Fla., Sept. 20, 1889.

The above came to us after the article and drawing from friend Cook had been put in type. We are very glad indeed to have a corroboration of the fact that these creatures are innocent and harmless. In fact, the superstition connected with bugs and innocent reptiles reminds us of the demon duck mentioned by our friend J. E. Walker, in his letter from China, in this issue. On our grounds I find it almost impossible to persuade the boys and men that the common streaked snake is not dangerous. Even where they have been found close by a Hubbard squash-vine, doing duty in protecting the squashes, the men can not let them alone. I am quite sure that, if no one would chase them with clubs and stones, I could get them as tame as my Brahma chickens. We can afford to take some space in GLEANINGS to find out that many of God's creatures which have been

pursued for ages as enemies are only harmless friends. Yes, more; that they have been laboring diligently for us for ages past.

FUMIGATING HONEY.

DR. MILLER TELLS WHEN AND HOW TO FUMIGATE WITH BRIMSTONE.

SO much has been said lately about brimstoning honey, and the plans in general are so troublesome, I am now tempted to give my way, although I have given it before. It is a very simple matter. Just get some powdered sulphur, light a match and set fire to it, and that's all there is of it. No dipping rags in sulphur, nor any preparation whatever. Within two minutes after the sulphur is brought from the store I can have it slowly blazing away, needing no further attention till the last atom is consumed. Although there is scarcely any trouble about this, I take some pains to avoid any danger from fire. Let me give you the minutiae of my last experience, which does not materially differ from that of several years. We were getting our crop of honey ready for shipment; and trusting somewhat to what I had read of the experience of others, I had said, "This honey has all been taken off so promptly, is so white and nice, and there is not one section in a thousand with a cell of pollen, that I don't believe there is any need of smoking it." But after scraping a good many sections we began to find here and there the tell-tale bits of powder that showed the little worms were at work there, even though we could not see them with the naked eye. So we concluded the remainder must be smoked before any more were packed in cases.

I said to my wife and Emma, "Now don't let me ever again omit fumigating. Those who say there is no need of it have different bees, or something different from mine, and it is just possible that, if they watched the matter closely enough, they would find some of their sections are wormy before they reach the table of the consumer."

So I got a pound of powdered sulphur. The roll brimstone is cheaper, but a great deal more troublesome to burn. The sequel showed that a pound was not enough for so large a room; and, to tell the truth, I don't know what is the right amount. If too much is used, some of the sections are made green; and even with too small an amount used, a few sections were slightly greened. It must make some difference as to the amount of honey in the room. Suppose you have a room measuring ten feet each way, and you find just the right amount to sulphur a single section, will it not require a less amount when you fill the room just as full as you can with sections? When the room is about empty, if it contains 1000 cubic feet of air it may be filled so full of honey that it shall contain less than half the air; and are you not to gauge the needed amount of sulphurous vapor by the volume of air to be saturated? If the honey is smoked within ten days or two weeks after leaving the hives, much less sulphur will answer than a month later. After the worms have attained full size it seems almost impossible to affect them with any amount of sulphur.

But, to return. I have an old kettle, worthless for ordinary purposes, which is placed on a dripping-pan turned upside down. The kettle has a capacity of perhaps 16 quarts, and is filled a quar-

ter to a third full of ashes. On these ashes stands another kettle of much smaller dimensions. In this latter I put the pound of sulphur. Making a kind of little dish in the top of the pile, I stuck in it a lighted match, and at once there was a little melted puddle on which a blue flame was playing. I covered over the whole affair with a worn-out milk-pan, both for greater security against fire, and so that it would burn more slowly. It was placed near a window, so that I could look in and see what was going on. The sulphur was lighted at about six in the evening. At 10 P. M. a line of blue could be seen burning away under the edge of the milk-pan. I then went to sleep and did not look at it again till 12, when it had burned out. Next morning, doors and windows were opened some time before the room was aired out fit to breathe in.

ROBBER-CLOTHS.

Friend Root says he didn't see any robber-cloths when here. No, we didn't need any; and, indeed, robbers troubled very little this year. Still, we did need them later in the season, and they were then used, but not very much. In the revised Langstroth, Dadant & Son include among "the utensils needed for neat extracting on a large scale," "two robber-cloths." Although I believe the robber-cloth is my own invention, I am always glad when it is not needed.

C. C. MILLER.

Marengo, Ill.

Well, doctor, if I had found evidences of worms in the sections, as you did, I should, without question, resort to the sulphur fumes; but so many have of late said they did nothing of the kind, and never saw a moth worm anywhere about the whole crop, that I had begun to think it was not necessary; and even now I do not believe I should think of fumigating until I saw some evidences of the moth worm. I would, however, keep an eye on the crop for several weeks after it is taken from the hive.

THE REESE CONE BEE-ESCAPE.

AN IMPROVEMENT.

I AM now using with great success and pleasure my bee-escape made wholly of a flat board and a single cone. The board is just the size to cover the T super or surplus case, and may have bee-space or half bee-space above or below, or both, as needed, and the 2-inch hole is put through the board at such a point that the cone will fit down into the lower or unfinished case of sections. When you have taken one section out temporarily, and this point will be determined by the width of section used, this cone may be about 3½ inches long, and is easily made from a piece of wire cloth 6 inches square, by turning a piece of hard wood to about the shape desired, as a form, and shape the cone over it. The cone may be at-



RESE'S SIMPLIFIED
BEE-ESCAPE.

tached to a piece of thin board with a hole in it, instead of the board direct, so the cone may be easily taken off, and all snugly stored away for next season. Now, to take off the last case of sections at the close of the season, just place an empty super over the brood-chamber; lay the escape board on, with cone down, of

course, and set the case of honey on top. The few lurking bees that will remain in the top case will all be old ones, and will not show fight when you remove the cover, but will be glad to fly back home.

In this empty case over the brood-chamber, when no honey is coming in between the spring or early summer flow and the fall flow, you will find the bees will cluster very quietly, and be out of mischief. This last plan will not get the bees out quite so clean as the first plan I wrote you about some time ago, but it has the advantage of forcing the bees into the empty case of sections at once, and giving them no empty space to cluster and build comb in the case that would contain the cone. I have been rather persistent in presenting to you and the public this discovery; but I know very well its merits, and it is cheap (no patent and no booming). Try them.

J. S. REESE.

Winchester, Ky., July 16, 1889.

We are greatly obliged to you indeed for your repeated hints and suggestions in this matter of letting bees go in but not come out, or, vice versa, letting them go out but not come back again. Your arrangement fills the same place in bee culture that a valve does in a pump. It lets the water go one way, but not the other.

ITALIANS BITING THROUGH THE COROLLA-TUBE OF THE TOUCH- ME-NOT.

MORE POSITIVE TESTIMONY OF THE CORRECTNESS
OF THE STATEMENT IN THE A B C.

WHEN I first perused the A B C book, I was rather skeptical in respect to the truth of the article where the author describes how he witnessed bees biting through the corolla-tubes of the touch-me-not flowers; and when, at a later time, Prof. Cook said it was all a mistake, and that he could teach another professor that "honey-bees do not bite through the corolla-tubes of flowers" (GLEANINGS, 1888, p. 926), I was, I am sorry to say, rather pleased to know that A. I. Root was at least once wrong, and not so infallible as I had thought him. But now I am not so ready to believe that he was mistaken after all, as he was to admit that he might be.

This fall I happened to enter a swamp, and I was surprised to find a great number of bees at work on the touch-me-not, which was very abundant. There was not one bee alone, but thousands; and you may imagine with what interest I watched them at work, that I might know the truth for myself. I saw but one bee enter a flower, and I thought he looked a little foolish when he managed to scramble out again, and I did not see him try the same experiment the second time. Almost all the flowers had holes bitten through the corolla-tubes, about $\frac{1}{8}$ of an inch from their ends, and the bees flew to them directly. I had a good view of two or three in the act of biting through the tubes of the younger flowers. There were several small bumble-bees and a few wild bees at work, but they all entered the flowers in the regular manner. These were all the insects I saw at work on the touch-me-not, but I was much interested by seeing a pair of humming-birds, dressed in the brightest of green and bronze, darting from flower to flower, and, passing with rapidly whirling wings, sip with their

long tongues the nectar from the deepest depths of the flowers. From what I witnessed, I know of at least one person whom it would be hard to convince that honey-bees do not sometimes bite through flowers to reach the nectar.

In this same swamp there were many thistles—great, lusty, tall flowers, as tall as my head—"bull thistles" we call them, and the Italians were working upon them with a vim. I mention this because I see no mention in the A B C of the thistle as a honey-plant.

F. N. HILTON.

Pontiac, Mich., Oct. 12, 1889.

I am very much obliged indeed for the compliment you pay me, and I hope that you and I are correct in the matter—not because I want to get ahead of our good friend Prof. Cook, but because I should be very sorry to know that any statement I have put in the A B C book is a blunder.

PECULIAR HONEY.

IS IT HONEY-DEW, OR WHAT IS IT?

MR. G. H. KNICKERBOCKER, Pine Plains, N. Y., sends me what he supposes to be "honey-dew." He says his combs are from one third to one-half full of such honey.

He desires my opinion as to its fitness for winter stores in this severe climate. He further states, that, were he sure this would be fatal to his bees, he would take them to Florida.

The honey was sent in the comb. It was quite dark, and the taste was so exactly like that of figs, that, had any one put it in my mouth, without my knowledge of its origin, I should have said unhesitatingly that it was figs. Two of my students said the same. One of them said, "It is the most delicious honey that I ever tasted." If this is "honey-dew," it is a very different kind from any that I ever saw or tasted before. As I have written our friend Knickerbocker, I should cast about for some jelly-factory, or other source of fruit-juices, as the source of the nectar from which this honey was derived. I have some very fine fruit honey that tastes very much like quince jam; and this honey made me think of my fruit honey at once.

As to Mr. Knickerbocker's question, let me say that our friend Manum, of Vermont, and several others, have sent me some very pleasant honey, with a like question as to its fitness for winter. All suppose the honey to be honey-dew. My opinion is, that any honey that is agreeable to us, and which we are willing to place on our own tables, is safe for bees. If it is bitter, and unfit for our larder, then it is hazardous to give it to the bees. I have taken as nice honey as I ever saw, from nectar which the bees gathered from the larch plant-louse. Such honey would be ranked No. 1 in any market. I used it very successfully as winter food for our bees. I wish very much to get samples of all such honey. I shall prize greatly some of this from Mr. K.

A. J. COOK.

Agricultural College, Mich., Oct. 14.

Friend Cook, I am glad to see you say something favorable in regard to honey-dew. If honey is good, I should eat it without asking why or inquiring where it came from, providing, of course, it produced no deleterious effect; and I believe the honey-bee has all the apparatus needed to make fit

for human food any thing which they decide is fit to be placed in their hives. Of course, this remark would not include poisonous substances used to kill insects, etc. Whatever nature furnishes, and the bees gather and store in their hives, I think is, as a rule, fit for food. I should be careful about discarding any honey that is nicely ripened and sealed up.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

AWAY FROM HOME WITHOUT YOUR BIBLE.

I am much interested and refreshed from time to time in reading your pieces for Our Homes, and have been especially struck to-day with what you say on page 751, respecting the difficulty you experienced in getting a Bible. I remember about two or three years ago, when going from home to visit some relatives for a few days, my bag being rather closely packed I omitted taking my Bible, thinking there would be no difficulty in getting three or four if necessary; but to my surprise and grief I found I caused some unpleasantness in getting the loan of one to take to chapel with me on the Sunday morning. It taught me this lesson: Never to leave my own "Sword" at home again, and expect to borrow from others. It reminds me of the ten virgins saying, "Give me of your oil," and getting refused, while we are gone to buy oil (or a Bible). We may lose the opportunity for using it. Better leave our night cap or Sunday bonnet at home than our Bible.

My other half is known as "Amateur Expert," so you had better put me down as

Yours sincerely,

MRS. A. E.

I am exceedingly obliged to you for your very kind words. The parable you refer to (the ten virgins) surely does seem to hit the point exactly. Since that time, when I have been away from home I have been provided as you suggest.

SUGAR-MILLS IN THE SOUTH.

I have left my little farm, and am at work on the Valley R. R. as fireman. It is funny to see the planters cutting cane in one part of the plantation, and planting it in another. They start to make up the cane this week; from the top of a telegraph pole I can see a dozen or more sugar-mills. An immense old brick mill is going to ruin. The roof had tumbled in on one part. The appliances were behind the times. It has not been used since the war. Although it was Sunday, three men came from the swamp, with a fawn. I have not seen GLEANINGS in three months; but the queen-bee at home reads it.

R. R. WILLIAMS.

Baton Rouge, La., Oct. 16, 1889.

MOVING A WHOLE APIARY WITHOUT A SINGLE ACCIDENT.

I moved my whole apiary, of about sixty colonies, without a single accident—not a comb broken down. I moved them on a wagon without springs. I put about 6 or 8 inches of hay in the bottom of the body, and I think it better than springs. I have no fall honey, as we have had too much rain.

J. W. MARTIN.

Greenwood Depot, Va., Oct. 5, 1889.

ANOTHER COLONY OF BEES LIVING AND PROSPERING IN THE OPEN AIR.

I send a rough pencil-drawing of a swarm of bees which I took from the under side of an oak limb about three inches through, where they had begun building their home. The tree stood on my neighbor's place. He found them about two or three weeks before I got them, August 20. They could not have been there long before he found them, for he passed the place nearly every day. They had



A COLONY OF BEES IN THE OPEN AIR.

three cards of comb, about 6 x 9 inches, and a narrow one besides. They had no honey, and not much brood. I think the swarm was small, because there was not much honey to be had at this season. I have heard of such cases in California, but this is the second case I have known of here. I send the drawing, thinking it might be something of a curiosity. It is not a common thing. If any one else has seen the like, I should like to hear about it.

Sarasota, Fla., Aug. 21, 1889. JOSEPH COSTELLO.

THE FOUNTAIN PUMP, AND HOW TO "DOCTOR IT."

My fountain pump does not work very well. It catches, and the pitman will not move readily. Then when it does go it goes with a rush. I have tried to get the thing apart to see what is the trouble with it, but have not succeeded. I want to take it to Cuba with me, to use in swarming time; but I should like to have it work all right. Can you suggest a remedy?

A. W. OSBURN.

Dehesa, Cal., Sept. 3, 1889.

P. S.—Hold! Since I wrote the above I have fixed the pump. I took off the nozzle and poured the pump full of castor oil, and now it works like a charm. No charge for this.

A. W. O.

The above is an extract from a letter of friend Osburn's. As others may have experienced a similar trouble, we give it to our readers.

NOT YELLOW QUEENS, BUT QUEENS FOR HONEY.

It turns out that the yellow queens that we have been paying such a bountiful price for are only second or third class queens for the production of honey. Well, that is just my experience; and the decision of that question in GLEANINGS will produce a revolution in the queen-business.

La Otto, Ind., Sept. 25, 1889.

E. S. HANSON.

We don't deny but there are nice yellow bees that are likewise good honey-gatherers; but the tendency on the part of queen-

breeders has, we fear, of late been to make too much prominence of color, and at the same time sacrifice every thing else for it—real business being a secondary matter.

A COLONY TOO LARGE.

I have a swarm of bees in an eight-frame Simplicity hive. I think the swarm is too large to winter in the lower story. Will it be all right to leave a T-super crate on during winter, nearly half the boxes being capped? I winter in the cellar. I don't care to divide the swarm, as all of my hives are full of bees from top to bottom. This swarm has made three crates of capped honey since August 16, a good per cent of it being from second-crop red clover grown for seed.

F. B. DAY.

Pittsburg, Mich., Sept. 17, 1889.

Leaving the sections on top will answer just as well, and, in fact, some years ago a great many reported having had better success in wintering where the sections were left on all winter than where they were taken off. I never saw a swarm too large for wintering, or summering either, in my opinion; but I think I should leave the extra-powerful colony out in the open air, unless, indeed, you have a cellar well ventilated and pretty cool. Be sure they have stores enough. If there is any doubt about it, perhaps another story filled with combs of honey would be safer, especially as your hives are only eight-frame. Of course, it will cost something to winter such a colony; but my experience has been that, when wintered, they are worth two ordinary colonies, and sometimes even three.

ASTERS.

The aster is just in bloom. It would do you good to see the bees on the flower, and watch their lively movements among the flowers. If it continues as it now is, dry and warm, they certainly will fill up their empty combs, for there is a good part of these combs empty. I have had very little surplus this season. My bees have not stored it. Last fall there was as large a supply of aster as I ever saw; but the weather was so cool and wet that bees actually did not get one good day to work in during the aster season, though they worked some a good many days, but did very little good.

DR. W. S. JONES.

Central Station, W. Va., Sept. 15, 1889.

HOW TO FEED POULTRY.

According to my judgment you ought to tell your subscribers that poultry pays if properly managed. Nine-tenths of the drawbacks are due to lice. Why not clean out the poultry-house every week (every day is better)? thoroughly saturate with lime and kerosene oil, and have your houses free from draught and dampness. Save the corn, and feed to some stock that you wish to fatten; feed wheat and oats in the evening; in very cold weather a little is well enough, and mess food in the morning, with a little cotton-seed meal during moulting season. As a rule, the best beefsteak at 16 or 18 cents per lb. is cheaper food than corn at 50 cents a bushel. Procure some good clover hay for your fowls in winter time, for green food; scald it, cut fine and mix with a little wheat bran or middlings. This makes the best morning mess. Have some broken glass or china ware before your hens, as grit; feed regularly; use common sense and prevention, and I can honestly say you can make

poultry pay; and for those that have common flocks, if they procure thoroughbred males every season they can greatly improve their stock.

DO BEES SLEEP?

I never read when and how bees sleep. How is it? Kulpville, Pa., Sept. 11, 1889. A. H. ANDERS.

So far as I know, bees do not sleep. Will Prof. Cook please tell whether I am right?

MY IDYL.

Each poet sings of his ideal fair,
Her charming ways and beauty rare,
All vieing with their utmost zest,
To make their own appear the best.
But I've a beauty in my mind
I'm sure outrivals all her kind.
Her form, her face, her very air,
Her — my pen can not describe her hair.
Ah! though I prove inadequate
Upon her beauty to dilate,
All who see her must agree
That she's as "sweet as sweet can be."
And when I note the fair address
Of this great treasure I possess,
Perhaps my actions do imply
That I am badly "gone" on her.
But though I'm voted quite a bore
For boasting her that I adore,
I hope that all will quite excuse
Each silly adjective I use;
For, though to beat, one oft contrives,
She's the fairest queen in all my hives.

J. H. MARKLEY.

Carbondale, Kan., Sept. 9, 1889.

GETTING THE BEES OUT OF THE SECTIONS WITHOUT A BEE-ESCAPE, SHAKING OR SMOKING.

In a late issue of GLEANINGS I read your footnote to an article commendatory of the Reese bee-escape. I have not had experience with the Reese implement, but I have experienced trouble in getting rid of bees in supers when removed from off the hives. This season I discovered how it can be done skillfully, and no trouble. Just as the shades of night appeared, I removed three supers, tiered one above the other from a hive, and set them near the entrance of another hive. Each super contained 28 one-pound sections, which were filled with honey; and when I removed them (the three had been tiered up by placing the second on top of the first and the third on top of the second) I set the load down where I stood, and allowed it to remain there until I was ready and had assistance. When I went to remove the supers I discovered the bees running in a mass from the bottom of the removed supers into the hive close by. I then loosened the supers from each other, and so placed each one in front of the hive that they could run into the hive; and by smoking the bees in the supers they all went into the hive.

Since the experience related, I have practiced removing supers in the early evening, and setting them down until the bees have time to realize they should and do prepare for an emergency by filling themselves with honey. I then place the supers in front of the hive, so situated that the bees can readily go from the super into the entrance of the hive; smoke the bees till most have left the sections, and let the super remain until about daylight, when all or very nearly all the bees have found their way into the hive. I have removed supers from the hive, set them in front of another

colony, and the bees went from the sections into the stronger hive. Why I did so was because I wanted to strengthen the colony. I do not dread removing sections from hives. Try my way of separating bees from filled sections. C. J. ROBINSON.

Richfield, N. Y., Sept. 20, 1889.

I believe, friend R., that all you mention has been many times mentioned in our journals, and the plan of setting the super near the entrance over night is in common use, at least to a considerable extent. But your idea of strengthening weak colonies with bees from sections of honey is, so far as I recollect, new. Although we are not so likely to have weak colonies when we are taking off section honey, it sometimes happens that we want to strengthen nuclei; and bees coming into the hive or nucleus from a crate of section honey would be pretty sure to be well received.

JAPANESE BUCKWHEAT IN FLORIDA.

The Japanese buckwheat I got from you last April gave me such satisfaction that I should like now to get some cabbage seed for winter growing here. We are now sowing the seeds for our winter vegetables. I have the fourth crop from the buckwheat got in April, now in bloom. It has planted fully an acre the fourth time. It has done remarkably well, and every one who sees it admires it, as it is quite a new thing in this section.

C. K. MACQUANIE.

De Funiak Springs, Fla., Sept. 29, 1889.

DOES COPULATION OF BEES TAKE PLACE IN THE AIR OR ON THE GROUND?

GLEANINGS for Oct. is at hand. I see that Prof. Cook has some doubts in regard to the bumble-bees mating when they were on the ground, instead of mating while in the air. I am positive that copulation had not taken place when I first saw them, and that it was accomplished while on the ground. If the queen bumble-bee can not sustain the weight of the drone while on the wing, it is quite certain that the queens of our honey-bees can not, as the drone bumble-bee is considerably smaller than the queen, while the drones of our honey-bees are as large, or larger, than the queens.

C. M. WOOLVER.

Richfield Spa, N. Y., Oct. 7, 1889.

THE BOY BEE-KEEPER AND THE CHURCH HIVE.

These labels are for my little 12-year-old boy, who has an apiary of 14 swarms of bees of his own. They are kept by his uncle, M. M. Rice (the man who took you down to Mr. Dexter's, in his buggy, when you were here). If you remember, when you were at my place you climbed on top of a honey-barrel with your Kodak, and took a view of my apiary; and when you got down you went and pulled some grass away from a church bee-hive (as we call it), to also take that with your Kodak. I told you then it belonged to the boy. I wish he could see the picture of it, as you took it then. He often speaks about it, and asks me to ask you about it when I write.

B. E. RICE.

Boscobel, Wis., Sept. 30, 1889.

I remember quite well, friend R., taking a picture of the church hive with the Kodak. I had forgotten, however, that it belonged to the boy. We have the view of the hive; and as it belongs to one of the boy bee-keepers I think we shall have to have a pic-

ture made. Tell my young friend to be patient. It will probably make its appearance by and by. I shall always remember you all with a feeling of gratitude for making my short visit so pleasant—especially M. M. Rice, who so kindly placed his horses and buggy at my disposal, that I might make the most of the half-hour I had to stay.

WHAT MAKES THE BEES DIE?

This is the third September I have been here, and our bees begin dying about Sept. 10th, but from what cause I can't tell. I asked, a year ago, one of our best bee-men. He told me it was only the old bees dying; but I can't see it so, as I find about as many young bees as old ones. They act as if they were stung. Last September my bees were in good condition. There were some eight stories, full of bees. When cold weather came they could cover only four Langstroth frames. At this writing they are dying very fast. I find plenty of sealed and unsealed brood. They now work on steelweed and goldenrod, which yield honey well. Our steelweed is one of the best honey-plants I ever saw. It blooms from September 10th till frost kills it. It takes a hard freeze to kill it. Common frost makes it better for honey.

F. H. COWDEN.

Morristown, Tenn., Sept. 22, 1889.

From your description I should infer the trouble was caused by something the bees had got hold of. Is it not possible that Paris green or London purple has been used in some manner, and that you have let your bees get hold of it?

REPORTS ENCOURAGING.

FROM 5 TO 20, AND 1142 LBS. OF COMB HONEY, AND HIVES WELL SUPPLIED FOR WINTER.

I have a very good yield of honey to report. I started with 5 colonies of Italians last spring in Simplicity hives. They have increased to 20 colonies. I have taken off 1142 lbs. of surplus honey, mostly in 1-lb sections, and the hives are all full in the lower stories, with the exception of one.

Earlville, Ill., Oct. 1, 1889.

L. A. JUDD.

\$1115 AS THE GROSS PROCEEDS FROM THE BEES.

I guess you will have to put me in among the Reports Encouraging. My report for this year is as follows: Commenced with 119 swarms; increased to 158 (should have had more if I had not doubled up). I bought an apiary of 53 swarms, not far from mine, just as they stood, with surplus honey, for \$159. Honey was all sold from both yards, amounting to \$915. I have sold 50 swarms without the surplus honey, for \$200.

C. A. SAYRE.

Sargent, Ia., Oct. 16, 1889.

A PREMIUM ON EVERY THING.

We got the premium on all the articles we took to the fair—8 in all—comb honey, extracted honey, best display of honey, honey pickles, honey cake, honey vinegar, Japanese buckwheat, and a fat girl baby. How is that?

REPORT.

My honey crop this season was 1800 lbs. comb in 4¼ sections, and 700 lbs. extracted. It was about all gathered from the 15th of August to the 15th of September, and is of a fine quality, and is selling at

12½ to 15 cts. for comb, and 8 to 9 for extracted. Bees are in good condition for winter.

Harris Station, Ind., Oct. 11, 1889.

J. KUNZ.

Now, look here, friend K., it seems to me that a man who has so many premiums, and a fat girl baby besides (that took the premium) ought to be able to tell how many colonies of bees he had when he got 1800 lbs. of comb honey and 700 of extracted. If you had only 10 colonies to begin with, it is a big thing; but if all that honey came from 200 colonies, it was not a very big thing, after all.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 147. *What is the objection to the use of drone foundation in the sections? Bees always build drone comb if the sections are not filled with foundation.*

I see no objection.

MRS. L. HARRISON.

No objection. No, they don't.

A. B. MASON.

The honey from workers looks finer, and the expense is about the same. Thus I prefer worker. I have no use for drone foundation.

A. J. COOK.

We prefer worker comb, for, if the queen finds her way up to the sections, the workers produced will have a value, while drones are worthless.

DADANT & SON.

Drone comb in the sections induces the queen into the surplus apartment when the amount is limited in the brood-chamber. It does not look as well in section honey.

H. R. BOARDMAN.

Queens are much more apt to deposit eggs in it than in worker size. I am inclined to think that it is not usually built as firmly to the sides of the section, and is more easily broken by rough handling. Its general appearance, to me at least, is inferior.

O. O. POPPLETON.

Where a queen-excluding honey-board is not used, the queen is more liable to deposit eggs in sections containing drone comb than in those containing worker. After the sections are finished, those having drone comb in them do not look nearly so nice as do those with worker.

G. M. DOOLITTLE.

The objections can not be very great, except that the drone-cells are filled with eggs by the queen, which may be expected if drone-cells are scarce in the brood-chamber. Besides, bees seem to give some preference to worker-cells when honey is coming in. They are generally filled up first.

C. F. MUTH.

I don't know that there is any objection to the use of drone foundation in the sections; but bees do not always build drone comb in sections, if the sections are not filled with foundation. I have in my honey-house to-day as nice sections of all worker comb, as anybody would wish to see, built down from half-inch starters.

E. FRANCE.

I am not authority on comb-honey production; but my present convictions are that I should prefer worker foundation, even in the sections. I have

noticed that bees when given an equal chance will fill worker comb soonest. Should we use drone comb in sections, it would necessitate having two machines or sets of rollers by those who manufacture foundation.

S. I. FREEBORN.

The main objection is the inclination to raise drone brood—a great nuisance where no queen-excluding honey-boards are used. This is entirely obviated by using worker foundation. Another objection that I have is, that honey in drone comb does not look so nice as honey in worker comb, and is less readily sealed by the bees. The latter is especially noticeable when the crop is cut short.

GEO. GRIMM.

The principal objection to drone comb has been from the fact that the securing of all worker comb in the brood-nest by the use of foundation has led the queen to use the drone comb in the sections; but now that the queen can be kept from the sections by perforated metal, we should be more in favor of using drone comb. I have used drone comb with impunity wherever I desired to in my extracting supers, and kept the queen from them with the metal. Great is perforated metal!

RAMBLER.

I know of but one advantage of drone comb in sections, which is, that it takes less wax to contain a given amount of honey, and I think this is over-balanced by the more fragile character of such comb in handling and shipping. Yes, bees fill out vacant places in sections with drone, but not primarily to store honey in, but for the queen to lay in; and I have often seen drone-cells in sections well drawn out, and not a drop of honey in them, while the worker-cells were filled and perhaps sealed. If a queen ever gets up into a super to lay, you will pretty surely find her laying in drone-cells there, and drone foundation in sections might be an inducement for the queen to go up and lay in them. I don't think a section of drone comb looks as well as worker.

C. C. MILLER.

In the production of comb honey, properly managed, there is no use for the queen-excluding honey-board; but there would be, if you used drone foundation in the sections unless there were lots of drone comb in the brood-chamber. Again, if you did use a queen-excluding honey-board, every queen in the apiary that could manage to get through the metal perforations would get up above if there were drone comb in the sections. I believe the bees would urge her up there, they knowing that the drone comb was there and there was none below. It is the bees that are boss, not the queen. Most people think worker comb handsomer than drone comb. I do not, but the querist will remember that he is raising honey for most people and not for me. No, we have no use for comb foundation, nor drone comb either, except in stock hives.

JAMES HEDDON.

The statement with which this question closes is not true, by a long way. My honey is all built from very narrow starters; and about one-third of it, this year, is of worker-sized cells. I have just been looking over a box of unfinished sections put by for next season's use. There were 21 with worker comb, while those with drone comb, counting in with them those that had the two sizes, about half and half, numbered only 26. I can not give any objection drawn from actual practice. A theoretical objection is, that bees seldom incline to build drone

comb much, unless honey is coming in with tolerable rapidity. Some of us have to have our crop gathered while honey is coming in slowly; and if the super were chock full of drone foundation, bees might feel disinclined to go on with it.

E. E. HASTY.

There seems to be a pretty fair agreement in regard to the matter, friends. I believe that Dr. Miller, however, is the first one who suggests that drone comb would be a saving of wax, and suggests one thing that I never thought of before; that is, that honey stored in drone comb is less substantial. It seems a little queer that the queen should go up in the sections because they contained drone comb, when she had never been there at all. Perhaps friend Heddon has the correct explanation in regard to it. I expected, when I first saw the question, that a good many would object to the concluding remark. I presume the writer of the query meant that bees will always build *more or less* drone comb if a foundation of worker comb is not furnished them.

MYSELF AND MY NEIGHBORS.

After this I beheld, and, lo, a great multitude, which no man could number, of all nations, and kindreds, and people, and tongues, stood before the throne, and before the Lamb, clothed with white robes, and palms in their hands.—REV. 7: 9.

A SUNDAY IN CHICAGO.

THE convention mentioned elsewhere adjourned at one o'clock Saturday afternoon. Now, Chicago is a wonderful city. A single street in it, I am told, is 35 miles long, and there is ever and ever so much to be seen in the great city; notwithstanding, when the convention was over I wanted to go home a good deal more than I wanted to see any thing else on the face of the earth. I knew that a train would leave in the evening that would land me within perhaps 20 miles of my home, at about one o'clock Sunday morning; and I even began arguing with myself that it would not be wicked to travel on Sunday before daylight. I did not propose to walk the whole 20 miles; but I figured up that I could telegraph to Ernest to meet me about breakfast time, part way, and I could walk eight miles before breakfast, as I did once before. Ernest would have to get up a little earlier than usual Sunday morning, but we could both be home and still have plenty of time for church. Now, this is just what I longed to do, and found it hard to refrain from doing. But something else said, "No, my child, you have really no right to indulge in such a piece of eccentricity. You have much reason to thank God for the strength he has given you, and for the energy with which you meet difficult tasks when they come. But this is not one of them. Remember the Sabbath day, to keep it holy. By far the better way for you will be to stay in this great city, and inquire, as you have done hundreds of times before, 'Lord, what wilt thou have me to do here *this* beautiful afternoon?'"

I obeyed the voice, but I confess that I did not find much enjoyment in it. I visited a nephew of mine in the suburbs, and together we visited the celebrated town of Pullman, where the palace sleeping-cars are made. The place is something wonderful, surely, but I have not time to describe it now. Saturday evening we attended a meeting of the Y. M. C. A., in Farwell Hall. I was much interested, but no particular blessing came to me there. I had simply the consciousness of doing my duty, but at the same time I was just a little bit homesick. The garden down by the creek, my little spring, the carp-pond, and the vegetables that stand the cold weather, including the strawberries, had more attractions for me than any thing that great city could furnish. I felt glad that God had given me a faculty to enjoy innocent, inexpensive amusements; and I felt glad that I loved the home, and the loved ones God has given me, better than any other home, or the home of anybody else, if you choose.

As usual I was up Sunday morning as soon as there was a glimpse of daylight. The great hotel looked about the same Sunday morning as at other times. In fact, there is hardly any morning, noon, or night, for the electric lights keep it about as light at night as by day, and there are always quite a good many folks around. Even early Sunday morning there are quite a few early risers—newsboys and others, moving about. May be you feel like inquiring whether I succeeded in finding a Bible at the Commercial House in Chicago. I was provided, however, so I did not need to inquire. There is one thing I did like very much. A large plain bulletin-board near the entrance of the hotel told all about the religious meetings, Sunday-schools, prayer-meetings, etc. This bulletin-board is corrected quarterly by the different pastors. From that, and from the daily papers, I learned there were no services of any kind until half-past nine. Long before that time, however, I had read my Bible until I was tired, and felt as if I *must* stir around outdoors. Now, I do not believe the all-wise Father expects me to stay indoors until I get dull and sleepy, even if it is Sunday. In a great city one can not get out at all unless he goes out on the streets. I decided to take a walk and look at the different church buildings, whose spires rose from every quarter of the compass. Many of them had very pretty bulletin-boards near the entrances, giving the hour of service, and extending a cordial invitation to strangers. Pretty soon my eye caught a glimpse of a little girl hurrying along with a book in one hand. Soon another one hurried in the same direction. It reminded me of the time when I was writing the chapter on "bee-hunting," in the A B C book. For weeks and months I roamed the forest at different times, eagerly following every bee I could see on the wing, and scanning trees having any appearance of hollows or openings where the bees might enter. When we saw a bee alight near one of these openings, and creep in, what a shout we set up! Now, I did not set up a shout when I saw these

little girls enter the basement of one of the great churches, but I felt just like it. As I neared the door a couple of boys came along, and they too had books. I asked them if it were Sunday-school where they were going, to which they replied in the affirmative.

"May I go too?"

They stopped, took a better look at me, and replied with smiling faces, "Oh, yes! We should be very glad to have you come with us."

As the door opened, a burst of music from childish voices came out and greeted my ear; and then something seemed to say to me, "Look here, brother Root. You have been saying to yourself that you have not had any thing like a blessing for having decided to remember the Sabbath day to keep it holy. What do you think of that strain of music?"

I did not say any thing out loud, but I said inwardly, "Why, it is just glorious. May the Lord be praised for the discovery I have made of such a Sunday-school, and so early in the morning!"

I think we were a little late, for they were all singing from their books. One of the boys showed me a seat, and another one looked from his book enough to see that I was a stranger, and instantly extended his book to me, with his finger on the place; but before my eyes caught a glimpse of the strange characters on the printed page my ears had told me that the singing was in an unknown tongue. From five hundred to a thousand bright, sweet-looking boys and girls of different ages were gathered in the great basement of that enormous church; and although I could not understand a word of the hymn they were singing, I knew it was praise to God, for the music was one of our most familiar hymns. Of course, I thanked the little friend who brought me the book, but I was obliged to explain to him that I could not read it. He looked up at me with curiosity and surprise, and said, in good English, "Why, can't you read German?" I shook my head, and so he kept his book. Very soon another childish face caught my pleased glance, and he too brought me a book. Then a third one did the same thing, until I began to decide that I should have to take a book and look on, or all the children near me would feel they were lacking in courtesy. My friend, is it a lesson to you as it was to me? Are the children in your Sunday-school, every one of them, taught to hand their book to a stranger as soon as they notice his presence? If not, then I want to tell you that we are, a good many of us, behind. As hymn after hymn was sung (all of them were very familiar tunes), I began to get happier. The children, almost without exception, entered into the spirit of the singing, with a heart and soul I never saw before. It seems to me that the sight of their faces alone, even if I had been totally deaf, would have filled me with thrills of joy. I looked from the pupils to their teachers. Many of the teachers were in their teens; but I tell you they were faithful and honest teachers. The boys in the class near me were restless, and full of pranks, as they are in almost any

other Sunday-school, and they made quite a good deal of noise when they were not singing. The youthful teacher remonstrated in German, several times; but it did seem to me as if some good forcible English was what was needed. I was a little startled when he evidently came to the same conclusion, for he spoke out in the clear tones of my mother tongue, "Look here! can't you behave yourselves just a minute or two until school is out?" Some of them looked at me and smiled, thinking that, perhaps, as it was something I could understand, they would have (out of respect to me) to do a little better, and they did.

It was not only the children I loved, but the great tall heavy superintendent. I have often seen German people gesticulate, and, with motions of the body, make clear their meaning; but it has usually been in the neighborhood of a beer-saloon. It never occurred to me before that this same talent for gesticulation could be used in explaining the Scriptures and in glorifying Christ Jesus. I could catch, from the faces of the audience, especially the teachers', the points he made in his remarks and motions; and when they came to repeat the Lord's prayer in concert I was pleased to know that I could keep track pretty fairly. Before the school closed I also caught glimpses here and there of what was being said and talked about. How that big superintendent *did* get around among his teachers and hundreds of pupils! I have seen people take long strides before, but I believe that this man did more work in a few minutes in the line of superintending the Sunday-school than any one I ever before met. Before the school came to its close I made up my mind I would never doubt again, when tempted to run away from the path of duty. Why, I actually began to think that I should find no enjoyment and no blessing at all to compensate me for having resisted the impulse to run home. The thought of that Sunday-school will brighten my whole life; and it is particularly along in the line of our text that I feel such a thrill of pleasure when I think of it. It seems to me that I there beheld the great multitude of which John spoke—a multitude which no man could number; a multitude composed of those who spoke another tongue, and people of another nation. They stood before the throne of God, and they were surely clothed with white robes compared with many of the children of our great cities whom we meet on the streets. I did not understand the language, but I have not a doubt but that it was something akin to "Salvation to our God, which sitteth upon the throne, and unto the Lamb." I love that school because they gathered there so early in the morning; and it gave me a feeling, too, that the other great churches in Chicago were not built entirely for show and effect; that even the basements were being used to glorify the Lamb of God which taketh away the sin of the world.

I have before spoken of the faithfulness and honest sincerity that I have found among many of the German people who come from the "fatherland" to our shores.

My heart has often been touched to see how patiently, and with what fidelity they will stick to their task until it is done *well* and *thoroughly*, and oftentimes in striking contrast to the heedless and slack way in which we Yankees "hustle" things. I had a strong love for the German people before; but as the glimpse of that Sunday-school comes again and again to my memory, and as the snatches of melody from the hymns I heard there sung by many voices come again and again to my ear through memory, I feel a stronger love and a greater desire to grasp these friends from another shore by the hand, and bid them welcome. I like to get hold of the hands of the mothers and of the little children; I like to grasp the stout heavy hands of the fathers—hands that have been made tough and hard by years of toil; and I like to say, "Welcome, dear friends, to these broad lands of ours, offering so many opportunities and privileges to those who love to work." Yes, I love the German people, and I love Chicago too, in a way that I never did before, since staying there through the Sabbath, in obedience, as I believe, to God's holy command. Not only had I found many *neighbors* in Chicago who spoke my own language, but I found neighbors among those who spoke a language I did not understand at all; yes, and neighbors who worshiped God in that to me unknown tongue. I shall be less afraid, I think, should God ever call me to stay there again; for is it not true that all nations and kindreds and tongues and peoples *shall* stand before the throne, clothed in white robes, . . . saying, "Salvation to our God, and unto the Lamb?"

THE NORTHWESTERN BEE-KEEPERS' CONVENTION AT CHICAGO.

AN ABBREVIATED REPORT, MOSTLY FROM MEMORY.

IT was my good fortune to be present at the deliberations of the bee-men of the West, on Friday and Saturday, October 11 and 12. Having it come so near the last of the week was, on many accounts, objectionable, but the reasons for doing so were that we might take advantage of the reduced rates offered, especially to those who wished to attend the Chicago exposition. Although reduced rates were announced in the papers, none of the railroad officials this side of Chicago seemed to know any thing about it. I presume it was a mistake, or an omission somewhere; but I think that such mistakes are unfortunate, especially for the railroads, as it encourages people to make unkind remarks in regard to railroads in general—that "they make these offers just to get our money, without any expectation of giving reduced rates at all," and such like expressions. I do not believe this is true; but I think it more likely that it was through somebody's neglect. There is a good deal of machinery connected with our great railroads; and although the work they have accomplished is stupendous, we must still keep in mind that the individual members of these great companies are all human. Some of them are dishonest and

tricky, it is true; but by far the larger part are only guilty of forgetfulness, procrastination, and neglect, just as you and I are.

The first familiar face I met was our old friend J. A. Green, whose writings have made his name a familiar one. Shortly afterward I met friend Heddon and his son, a nice young man perhaps some younger than Ernest. The president, our good friend Dr. C. C. Miller, came a little later, accompanied by his sister and sister-in-law. Mr. Aspinwall, of potato-planter celebrity, was there with his combs made of wood. He is getting to be quite enthusiastic in bee culture, and it was quite a pleasure to hear him talk.

How early shall we put bees in the cellar? was decided by a vote—the greatest number favoring about Nov. 25. I was a little surprised at this, because I supposed experience of late was in favor of almost one month earlier; and most of the friends present came from a much colder locality than our own.

In regard to the best size of section, the general preference was in favor of the one-pound, or, perhaps a little better still, something a little *less* than a pound. The objection to having them run over a pound was, that consumers usually inquire first the price of honey. If the reply is, "Sixteen cents," and a section is handed out, if it weighs up only 15 or 14 cents, it is all satisfactory. If, however, the dealer explains that, although it is a pound section, it weighs more, and the price is 17 or 18 cents, many feel a little as if there were some kink about it that was not quite straight. Very likely this is true. But our Simplicity section, as a rule, especially where separators are used, runs a little less than a pound, rather than over. Friend Heddon remarked that he sold half-pound sections readily for 10 cents apiece. With us, however, half-pound sections have not been a success. Our customers have become used to a pound, and they do not take readily to something different. Perhaps one reason is, that we have pasteboard boxes made expressly for the one-pound section, and we have not as yet had any made for the half-pound. In regard to supers for comb honey, something like the T super seems to receive the preference. When one has more bees than he wishes, uniting in the *spring*, so as to make colonies extra strong, is recommended. To facilitate the disposing of extra queens, I would suggest timely advertising.

PREVENTION OF SWARMING.

With out-apiaries it is especially desirable to have as little swarming as possible. Our enthusiastic friend Aspinwall thinks he can prevent swarming by the use of his wooden combs. If the bees have no drone comb, and no opportunity of making any, they can not rear drones; and friend Aspinwall says no colony swarms until it has drones or drone brood. I do not remember that this matter has ever come up before in just this way. It has set bee-keepers to thinking, and the matter will be tested pretty thoroughly, doubtless, during the coming season.

UNFINISHED SECTIONS.

The old question that was discussed two years ago was revived. J. A. Green still insists that it does not pay to keep over old sections partly filled with comb; that is, no more than what are needed for bait combs, say one or two in each super, to get the bees to commence readily above. Others insisted that they could get quite a yield of honey by having sections partly or nearly filled with natural comb, where they would get little or none with empty sections, or even with sections having full sheets of foundation. Dr. Miller piles his supers of unfinished sections up, then places them in a hive, in the open air, and contracts the entrance of said hive so that only one bee can get out and in at a time. He says it does not encourage robbing, but, on the contrary, the bees clean out the sections so nicely that there is no more tendency for the honey to candy when placed in these old combs than if put in combs nearly drawn out from fresh foundation. Several recommended breaking down the comb in old sections, so the cells were, say, not over a quarter of an inch deep.

QUEEN-EXCLUDING ZINC.

Quite a discussion was also given in regard to this. I believe the general tendency was, however, greatly in favor of using queen-excluding honey-boards. Some of the zinc used in our early experiments was too large, and some was too small. Very likely there is not a perfect agreement among bee-keepers as to the proper size of perforations. Three different sizes are, I believe, now on the market, varying but a hair's breadth, however.

I was pleased to find one of our commission men, Mr. R. A. Burnett, present at one of the sessions, and he talked to us on

MARKETING HONEY.

He says that honey, as a rule, ships much safer in October and November. When the weather is very warm, there is much greater danger of breaking and leakage. He says the pound section seems to have pretty much driven out all other sizes. For extracted honey, the 60-pound tin can boxed seems to be the best package, and I believe it is also recommended as being the best for storage.

BROAD AND NARROW TOP-BARS TO FRAMES.

There seemed to be a difference of opinion in this matter. While some prefer top-bars $1\frac{1}{2}$ inches wide, by far the greater number seemed to prefer them about $\frac{3}{4}$. Very likely the wide top-bars might work something as does a honey-board in discouraging brace-combs between sections and the top of the frames, or between the sections and the honey-boards.

OVERSTOCKING.

While without doubt many localities are often overstocked, the general opinion seems to be that we may keep from 75 up to 150 colonies in a single location, rather than to start an out-apiary. Circumstances may, however, modify this a good deal.

For a more complete report of the convention, see the *American Bee Journal* for Oct. 23. In fact, I am indebted to the report there given for bringing to my mind the many points considered.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

RAISING THINGS UNDER GLASS.

I AM going to give you a talk now, dear friends, on a subject that has been on my mind for several years. In fact, I spend hours and hours in inventing and planning in regard to it. I have enjoyed myself, too, in the work, even though it has not as yet amounted, probably, to very much. Sometimes when I am taking a buggy-ride in the night, or riding on the cars, I say to myself, "Now for a good time inventing, planning, exploring, etc." In the first place, I have never been satisfied in raising lettuce, radishes, strawberries, spinach, corn salad, onions, cucumber, etc., under glass. The reason I have never been satisfied is, that they do not grow and succeed as they do outdoors. In fact, I have never seen many greenhouses in my life where things look as thrifty and healthy as I wish to see them look. Perhaps you think I demand a good deal. Well, may be I do. I should give up discouraged, perhaps, were it not that I have now and then had glimpses that seemed to show the possibilities in the line I am looking into.

Another thing I do not like about plants under glass: it is the almost invariable green-fly accompaniment. Instead of getting the conditions just right for the growth of lettuce, tomato-plants, etc., we seem to almost invariably hit upon the exact conditions required for raising the green-fly. If that were what we set out to do, we might rejoice over our complete success. First you know, here and there will be the little white specks on the ground, indicating their presence. Examination shows just occasionally a green fly. In a week there are hundreds, and in two weeks may be a hundred thousand. If you enjoy seeing growth and multiplication in animated nature, you have it with the green fly, to a dot. Well, why does the green fly grow indoors and not out? I have never yet found anybody who can tell; but I think I have solved the problem myself. Some years ago I speculated a good deal as to why there was not a green fly to be found in the open air, while they were a perfect pest in a bed not one yard distant, under glass.* Perhaps you may ask, "Why not have all the lettuce in the open

* I am aware that we can manage the green fly by the use of tobacco. Last winter one of our boys fumigated the greenhouse so thoroughly that he killed every fly in every stage of existence; but he killed all the tomatoes, radishes, and even injured the lettuce. But I do not like tobacco. I do not want it around our boys, and I do not want to regale the senses of our visitors by something so strikingly like tobacco juice squirted on a hot stove in a poorly ventilated room. Of course, if there is no other way we shall have to use tobacco dust, and tobacco smoke and vapor. But I believe there is a better and cheaper way.

air?" Why, we do do just that until the frost is severe and must have protection. Why not, then, cover it when the frost is severe, and no other time? Well, it is just the thing we are coming to presently but not just yet. The question now is, "Why does not the green fly flourish in the open air?" Well, I think I have solved that problem. At one time, when a bed was badly infested, some time in March, I think, the weather became warm enough so we could strip off the sash, and in a little while the green fly had disappeared, and the lettuce looked strong and healthy. Was it the circulation of air all around the plants, that they did not have under glass? I thought so once, but I afterward gave it up. A long drenching rain was what wound them up; and I feel sure, my friends, that it is the long drenching rains that stop the enormous multiplication of all aphide families. Perhaps you suggest a remedy—watering the plants profusely in the greenhouse. Well, I think this would answer, providing you could imitate a gentle shower, and keep it up for three or four hours. Spattering water upon the ground so as to make the ground muddy may perhaps injure the fly, but it also injures the plants. We have just experimented upon a pretty large scale with greenhouses made so the rain could come through all around the lights of glass; but it came in streams and "lumps," if I may use the expression. It made the ground muddy and soggy, and spattered soil all over the plants, and would not answer at all. So it is with a great part of the watering. Nothing has ever been invented so good as nature; and I propose that nature shall have her own way. Not only is rain better than any other kind of water, but straight sunshine without any glass intervening is better than any kind of sunshine that comes through glass, cloth, or any thing else. Newly transplanted plants, that need shading, of course do not come under this rule. In that case we wish to cut off the rays of the sun, and confine the dampness so that the ground shall neither bake nor dry, and so the plants may not wilt.

Now, then, we know what we want, or at least I think I know what I want. I want my whole garden right in the open air, where it can get the first ray of sunlight, without obstruction from trees or buildings, and where it can get the last ray at night in the same way. I want every thing in the open air the way I have described, until the nights get so cool that the plants will receive injury. Lettuce, strawberries, onions, spinach, radishes, and a large class of plants, do not seem to be hurt by nights so cold that the ground freezes so as to make a crust. They will, however, make more rapid growth if protected so that the ground does not freeze at all. If, however, all the crop is ready for the market, and we wish to hold it there in order that it may not shoot up to seed, then leave it out, even though the ground does freeze. Give it protection only when the foliage is liable to be injured. I have ascertained by experiment pretty nearly where this point lies. Even tomato-plants, when hardened by gradual exposure,

can be made so tough that they will stand a pretty cold snap. In fact, they do not seem to be very much harmed by a little snowstorm, providing the air is above the freezing-point at the time the snow falls. Cold winds do more damage, even though the temperature of the air is considerably above freezing, than does a light fall of snow without wind; therefore we want to make it a study to know just how much hardening our plants will bear and not sustain positive injury. At the present writing, Oct. 16, our peppers in the open air across the street from where I am writing have sustained no serious injury. Tomato-vines have been killed on the low grounds, and these peppers are scorched a *little*. But under the influence of our Indian summer they have made new growth, and we are having peppers in abundance. They have become gradually hardened, so they would stand a good while, if we could interpose glass or cloth for a few hours during severe weather. There is almost always quite a demand for all these things just after frost has killed them all. Many of our customers complain bitterly almost every year because they were a little too late in getting something they intended to get. Well, how shall we interpose this cloth or glass when it is wanted, and get rid of it quickly and easily as soon as it is wanted no longer? Another thing, I want to have the establishment look tidy. Sunshiny mornings, after the frost has melted away, the sash, cloth frames, sheets, baskets, boxes, newspapers, etc., scattered all about the garden are a nuisance. Besides, the wind gets hold of them, and blows them around in an unsightly way, to say nothing of the damage they do. I know how market-gardeners manage it. I have carefully hunted up all such establishments in the vicinity of many of our great cities. The only plan I have discovered is by means of the usual hot-bed sash. The bed is a little less than 6 feet wide. The sash are mostly more than 6 feet long, therefore a man is needed at each end of the sash to remove or put it back. It is true, a good strong man can handle sash alone to a certain extent; but it is very hard work. When the sash are removed, of course they must be put somewhere; and the customary way is to have beds of such length that the sash may be put in piles at certain intervals. These piles should not rise more than five or six feet, for convenience. Probably not more than 50 sash would be put in a pile; therefore if the sash are three feet wide, the piles would be 150 feet apart; and the men who handle them are obliged to carry the last sash removed, a distance of 75 feet to reach the piles. This makes it so big a job to cover and uncover the plants that the sash are on a good deal of the time when it would be much better to *have them off*; and, vice versa, they are off a good many times when they really should be *on*. My experience with handling sash has been that the plants are either getting scorched by frost or scorched by heat a great part of the time.

A year ago I procured three sets of Hitchings' apparatus for raising and lowering sash. These operate so easily that I oft-

en open them when the sun comes out from between the clouds, and close them again when it goes back under the clouds, and I really enjoy it, for the whole operation consists simply in turning a crank. I do not enjoy lifting sash at all, especially on a windy day; but I think that turning a crank is just fun, especially when I can see a dozen sash move in obedience to my will, and when I can hold them at any point without a bit of danger of the wind taking them from my grasp and doing damage. It takes an expert to handle sash without "putting his foot in it" every now and then; but any cheap boy can turn a crank. Now, I am not a "crank" myself, and have no ambition to be called one; but I do *love* cranks—that is, the kind I have described. I think you now see what I want. I want an arrangement whereby we can get either glass sash or cloth frames entirely out of our way by simply turning a crank, and can also put them back exactly in place, and have them held there safely by turning the crank the other way. If you want great power, the crank may be a very long one. In my recent visits to large cities I have been greatly interested in seeing two men, with a crank for each, *ten or twelve feet long*, move a great iron bridge, large enough to permit great vessels to pass through, and strong enough to hold heavy railway trains, after the bridge was back again in place. Yes, I have had *visions* for more than a year, of a great glass structure to revolve on a central pivot, just like these immense bridges. Half of this structure would be glass, and the other half an opening. One or two men could turn it around so as to present the glass toward the sun as it marched through the heavens; and when the weather is warm enough, the *open* space could be turned toward the sun, so as to get the direct rays; and when it rains, the whole contents of the greenhouse could have the benefit of the shower. If a steam-boiler is used to heat the house, a little engine would do the turning. In fact, a thermometer could be made by electricity to revolve the whole apparatus in obedience to changes of temperature. But I think I should prefer bossing the turning myself.* I have also thought of a greenhouse set on wheels, to run on a railway track. When the sun shines, push it back out of the way; when it gets frosty, shove it forward. As, however, it is risky business to move glass structures, we could, if we choose, have the *plant-beds* on wheels, and run them out for rain and sunshine, running them in again when they need protection.† The great objection to all

these arrangements is, that we must have twice as much ground as our garden occupies. In great cities, where market-gardening is mostly carried on, ground is quite expensive; and keeping an extra piece of ground, just for holding a glass house, or plant-beds, occasionally, is quite expensive. We want our glass sash or cloth frames taken away somewhere so as to occupy but little space.

What objection is there, do you ask, to Hitchings' apparatus for tipping the sash up edgewise? Well, in the first place this machinery does not tip the sash up so as to let the rain strike every part of the plant-beds. Perhaps it might be arranged to do this. Another thing, it takes enormous power to raise all the sash in a large greenhouse up on one edge. Do you say, "Balance them by a shaft through the middle, so as to swing them on their centers"? Very good, but still two difficulties present themselves. If we have the glass near the plants (and it is by far the better way), the sash will come down unpleasantly in the way when the weather is warm enough to have every thing open. Another thing: A sash, to swing on its middle, must have a great many openings in the greenhouse—openings of such a character that it is quite difficult to have them closed up tight when zero weather comes.

Perhaps I should explain, that, in our locality, there is not a month in the year, and very few *weeks*, when we do not have rain more or less, even in the coldest part of the winter; and when it is warm enough to rain, it is warm enough to have every thing in the open air. I have tested the matter on a small scale, far enough to know that excellent results can be obtained by such a contrivance as I have suggested. In fact, Peter Henderson has figured a house for hardy plants in the florists' line, made a good deal on the plan I suggest. You will find it in the *American Florist* for Aug. 1, 1889. You can easily test the thing on a small scale by making a plant-bed on the south side of some building. If a wing comes out just far enough to keep off west and northwest winds, it will be an advantage. Now have your sash hinged at the north side of your bed, so that it may be turned over against the wall of the building, and you have it. Even if your bed is 30 feet long, a man at each end and one in the middle would throw the sash over against the building, where it must be fastened, of course, to pre-

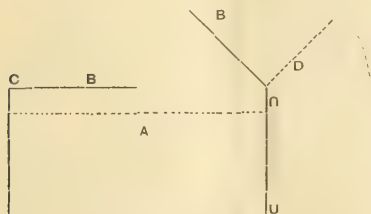
*This great circular glass house should have the lower edge of galvanized iron; and this lower edge, where it revolves, should dip in a trough of water. This would make it turn with great ease, and yet be perfectly air-tight. When the water in the trough freezes up, there would be no need of turning it; and the metal edge frozen fast in the trough of water would make about as tight a joint as one could ask for. If the circular house is not too large, the owner could swing it at any time by reaching one of the rafters overhead, and giving it a push. Of course, the expense of such a structure would be pretty heavy; and setting glass on a circular sloping roof is very expensive business.

†There is a pleasant feature about having the plant-beds on wheels. For economy of space they

could be pushed tight up against each other, occupying all the space usually used for paths or alleys, leaving room for only a single walk, on the south side of the house, for instance, so a walk can be made anywhere you wish by pushing the beds apart—that is, spreading them wherever you want to get in, instead of having the vacant space on the south side, as mentioned. This arrangement would also prevent dampness and mold, because the beds could be moved apart so as to let the sun and air all around them, underneath as well as overhead. The principal expense would be a level substantial track, with strong accurate wheels and axles, so the beds would move with very little pushing. I would adopt this plan were it not for the expense of the extra ground that can not, as I see, be made available for any other purpose; also the expense of the track, wheels, and axles. Possibly the plant-beds may be floated on water, like a canal boat, cheaper than to put them on a car.

vent the wind from blowing it down. Cloth frames answer excellently until we have heavy snows. I never want any thing to do with cloth frames when we have snow even half a foot deep. They may answer in October and November, and perhaps in March and April; but here we are liable to have snows that make trouble, both in November and March.*

Now, I have given the above as much with the idea of possibly receiving some hint or suggestion from some of my readers as with the hope that it may prove helpful to those who have been studying along in the same line with myself. I would suggest an easy method of having flowers and vegetables, that might need fall protection, and yet have the apparatus at all times present a neat and tidy appearance.



Let A represent a plant-bed; but instead of having it 6 feet wide, let us have it only 3. The dotted line represents the height of the soil. The sides may be made of boards held in place by sticks. These boards must be 18 inches if the bed is 3 feet wide. B B are cloth frames hinged at C. The hinge may be of leather, or even the edge of the cloth tacked to the board forming the side of the bed. Now, when it is frosty the frames B B are turned over so as to cover the bed, resting on a stake just above the letter A. When they want sunshine or rain, raise them up and let them drop down by the sides of the bed shown at D. The wind can not hurt them in this position; and if the bed is not very long, you can open or close the frames by standing at the head of the bed and taking one in each hand. Glass may be manipulated in the same way, only that it would be pretty heavy, requiring a man at each end, say for a bed 15 or 20 feet long. Another objection to this arrangement is, that the soil, being 12 or 15 inches above the surface of the ground, would freeze through quicker than if the path were not so far below it. Peter Henderson once said to me that he had got tired of hot-beds or cold-frames where one could not come inside to regulate the temperature, and I think a good deal the same way. I want to be inside, not only to see what is

going on, but I like to be where it is warm and comfortable; and if it is too hot or too cold, turn the aforesaid crank one way or the other.

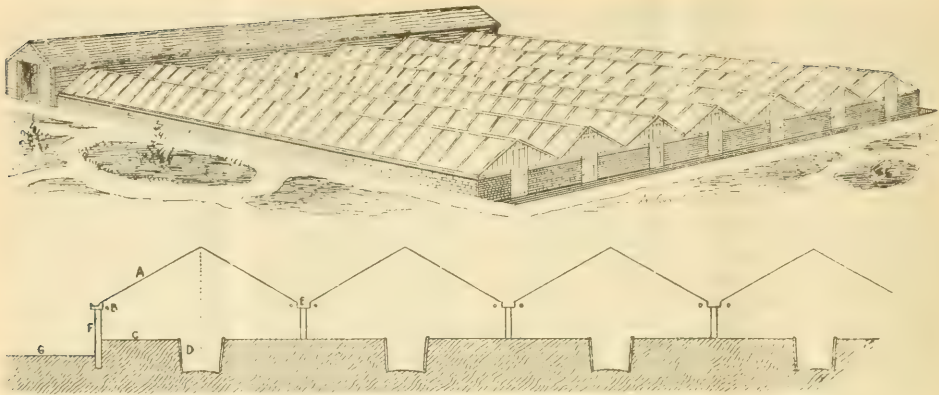
I spoke of killing the green flies by a drenching rain. I have tested watering with a fine spray, such as the Nixon nozzle gives, and this seems to answer a good purpose. Very likely the dews of night have considerable to do with keeping down the aphide family. Now, if there is no dew in our greenhouses or cold-frames, we are not following nature. Another point comes in here: If we water the plants so profusely as a shower of several hours, there must be some provision not only for rapid drainage, but to have the soil dry out as it does in the open air we must have a *movement* of the air. Stirring the soil, together with a circulation of warm air, will dry out the ground as it dries outdoors. Now, when the weather is too cold to allow us to open the ventilators for many days, do not our plants suffer from a lack of air? And this suggests the thought that has often come to me—why not warm greenhouses as we often do dwellings and public buildings, by blowing through them a current of warm air? One of our factories is warmed and ventilated in this manner, and it is the most satisfactory warming we have ever had. A very gentle blast of air—perhaps just enough so that the warm air is slowly pushing out through all the crevices, will accomplish the result; and as this would prevent cold air from pushing in at the crevices, may it not be as cheap a method of heating as any? I have never succeeded in getting any satisfactory growth of plants unless very profuse watering was followed by the gradual drying-out of the soil until another profuse watering could be administered with safety. Watering, without giving the soil time to dry out, produces dampness and mold, which very soon destroys most plants. The great troubles that have come from the rotting of lettuce in greenhouses seems to me can be accounted for by a want of dry air to dry out the soil, as well as for want of sunshine. Running steam-pipes underneath the beds is a pretty good way of accomplishing the result. But steam-pipes will never dry any thing unless a circulation of air is also assured. We once built a dry-house, and were surprised to find the lumber would not dry, no matter how hot we made it. When we sent a stream of air over the steam-pipes to warm it, and then passed it through the lumber and out into the open air as fast as it became loaded with moisture, then our lumber dried out promptly. Do we not need something of the sort in our greenhouses, especially during the winter months when we have many cloudy days and little sunshine?

Since Peter Henderson's arrangement above alluded to comes the nearest to filling the bill of any thing we have as yet found, I have thought best to submit it on the next page, with an explanation in Peter Henderson's own words:

LOW GREENHOUSES, OR PITS.

There is nothing new in the plan; it is almost identical with what we and others have had in use for the past thirty years, except it be that, instead of lifting the sashes individually for ventilation

* There is one way by which cloth frames may be made to answer all winter. Have shutters to put over them when more than half a foot of snow comes or is expected to come. The air space between the cloth and the shutters is an additional help to keep out the frost. When the snow has ceased falling, and the sun comes out, or if the temperature is mild, even if the sun does not come out, throw up the shutters. This makes additional work, but it will give very good results for a cold-frame. It is not, however, as good as glass, and is considerably more trouble.



SECTIONAL VIEW OF LOW GREENHOUSES, OR PITS.

A. Sash, 6x4 ft. B. $1\frac{1}{4}$ -inch steam-pipe. C. Cemented bench, $4\frac{1}{2}$ ft. wide. D. Walk, 2 ft. wide and $6\frac{1}{2}$ ft. from ridge. E. Yellow pine gutter, 10x4 inches. F. Front wall, $3\frac{1}{2}$ ft. high. G. Ground-level.

with an iron bar for a lever, we now apply the ordinary hoisting apparatus, so that every alternate sash on the south side can be lifted to a height of nearly four feet. This was the great desideratum in our first erections of these low houses, whether of fixed roofs or portable sashes, that for the purposes for which such houses are best adapted—the growing of hardy and half-hardy stuff—sufficient ventilation could not be obtained. These low houses are formed of sashes 6 x 4; the glass is double thick, 10 x 14. All sashes on the north side are screwed down, also every alternate one on the south side, the others being used for ventilation. This abundant means of ventilation makes such houses adaptable for any purpose that cold-frames or sunken pits are generally used for, such as the growing of violets, pansies, daisies, bulbs of all kinds, or, in short, any plant whose nature rebels against a high temperature in a dormant state. For dormant hybrid roses, clematis, hydrangeas, and carnations, we find them particularly useful, and we never before have had such satisfactory results from that class of plants.

The space occupied by these houses on our place is 300 feet long by 90 feet wide. The length is crossed by two potting-sheds each 15 feet wide. As will be seen by the ground plan, the paths are sunk, the sides of which are held up by brick on edge laid in cement; the benches are all cemented, thus always presenting a clean, smooth surface on which to set plants. The posts supporting the yellow pine gutters are locust, so that houses so built, we believe, will stand for at least twenty-five years, with but a trifle for repairs. The heating is done by steam, by three of Lord & Burnham's No. 5 hot-water boilers with a steam-dome attachment. The two $1\frac{1}{4}$ -inch pipes in each house are attached to the gutter-plate, as shown in the plan, which is sufficient to keep out frost in coldest weather; if heated by hot-water it would require exactly the same amount of four-inch pipe to do the same work. It is in such conditions as we have here, however, where steam has the advantage over hot-water, the extreme point to be heated being nearly 600 feet from the boiler-pit: it would hardly be practicable to heat with hot water at such a distance.

This block of pits was erected by Lord & Burnham, and cost \$7.50 per running foot, for each house, complete. This, of course, far exceeds in cost that of the ordinary sunken pits, which we used for the same purposes, sometimes using them as sunken hotbeds, heating by manure; but two years' working of this new plant has convinced us that we would have been many thousand dollars in pocket had we made the erection years ago instead of bungling along with the cold sunken pits, because, not only is there always loss by breakage in matting up such pits, but often great loss to plants is sustained from snow-storms when the pits have to be kept closed. As a matter of fact, although the area covered by these low houses is considerably less than we had in sunken pits and cold frames, our output of plants has been more than doubled, and at much less expense in labor. Against that, of course, is the cost of fuel, which I

estimate to be only about \$500, as the temperature is at all times low, but, taken all together, it is perhaps the most satisfactory change in our greenhouse plant that we have ever made.

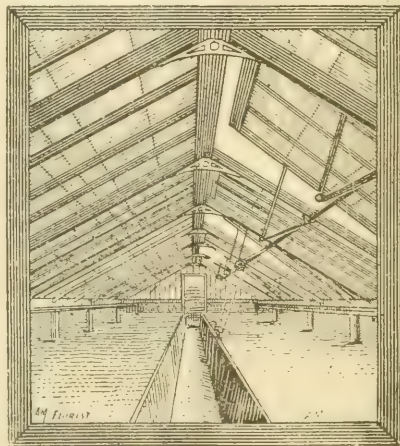
Although we use these houses only for half-hardy stock, and keep them at a low temperature, of course they can be used for other greenhouse stock by increasing the heat; but for growing flowers in winter, or for growing plants requiring a high temperature, such houses are not so well adapted as the modern rose-house, which I believe to be the best for any purpose of flowering or fruiting plants in winter. But most florists growing a general stock always find a necessity for cold-frames or retarding-pits, and for such purposes I doubt whether this style of low greenhouses can be much improved upon.

PETER HENDERSON.

Jersey City, N. J., July 11, 1889.

In addition to the above, the editor of the *American Florist* adds the following:

It should be added, that surplus water drains into the cemented walk; and the houses having a slight fall, the water flows easily in the side gutters to one end, where it is carried off by a sewer. The rafters and ridge-pole are of yellow pine. It will also be noted, as shown in sketch of interior, that each sash which is raised by the ventilating machinery is provided with two arms, one on each side. At the apex of the roof the two rafters and the ridge are solidly united by a small iron truss, which is undoubtedly of considerable value in strengthening the roof and keeping it in shape.



INTERIOR OF LOW GREENHOUSES, OR PITS.

For the use of market-gardeners we should not want the top of the beds cemented—that is, I would not; but this, of course, is optional. If I understand it, the sides of the paths are sloping, rendering them less liable to cave in. The bottom is also highest in the center, so that the workmen would not be obliged to stand in the water. Now, instead of having only every other sash on the south side hinged, I would have them all hinged. See cut on previous page.

Then I should want the sash-raising apparatus capable of throwing the south sash clear over, so as to lie on the north side of the neighboring house. If fastened there so the wind can not blow it over, it can remain all summer. The last row of buildings on the south side would need a fence, or some support for the sash. When thus arranged, the sun in the winter time would shine on every inch of ground inside of the houses; and if the rain were from the south, and driven sufficiently by the wind to fall at about the same angle as the sun's rays we should also have rain on every inch of the plants; however, this would probably not often happen; therefore a part of the interior would have to be sprinkled with the hose, in the usual way.

Now, then, the problem that confronts us is this: How shall we throw the sash, or, in fact, the whole south roof, over against the north roof, and bring it back? Pulling it over with a chain or rope will not answer, because it must be held at every point so the wind can not take it and smash the glass. The mechanism must raise it up quietly and let it down quietly. For the sake of economizing power as well as time, it should commence to rise very slowly and with a good deal of power. As it nears a perpendicular position the power may be decreased, and the speed correspondingly increased; and the same way in letting it down. The ordinary sash-raising apparatus does not move the sash through, say, one-fourth, or, better still, one-third of a complete circle. Perhaps, however, it may be arranged so as to do it. It can be readily arranged so as to move more rapidly and with less power when the sash comes near the perpendicular. I have figured a good deal on levers and endless chains, and sash balanced on centers; but time and again I am driven back to the ordinary sash-raising apparatus, modified so as to throw the sash clear over against the neighboring roof.

Now, friends, I have finished my long story, and you know just how far I have got in finding my ideal winter garden.

only. Now, brother bee-keepers, let every one, who possibly can, come to this convention, and let us get acquainted; and if it is a success, I am willing to take the honors; but if it is not, please do not mention it. It seems that somebody had to make the call, if we are to have a convention; and as no one else did, I now have done so. A place to meet at has been assured us, free of cost.
J. W. ROUSE.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, NOV. 1, 1889.

And they were all filled with the Holy Ghost, and began to speak with other tongues, as the Spirit gave them utterance.—
ACTS 2:4.

We have at this date 9144 subscribers.

NEW subscribers can have GLEANINGS from now till January 1, 1891, for \$1.00.

THE LONG ARTICLE, GARDENING UNDER GLASS, IN THIS ISSUE.

LEST some friend who does not care for gardening should complain at the amount of space I have occupied, I want to say that I told the printers I wanted four extra pages in this issue. They said they could not very well put in just four extra, but they could make it eight. Therefore, if you will notice you will see we have given eight extra pages this time—the five that do not cost you any thing, about gardening in the winter, and three more about bees, etc.

WHO CAN FURNISH QUEENS IN NOVEMBER?

We are just now in the same predicament we have been almost every year—lots of orders for queens, and none to be had. Will not some of our enterprising friends in the South put in an advertisement, to the effect that they can furnish untested queens to any one who wants them, as promptly as we are in the habit of sending them from here? We think it very much better for the seller and buyer to communicate direct during November and the winter months. Keep a standing advertisement all winter, of untested queens ready to ship by the first mail, and you will have a good business, even if you charge the prices given in our catalogue, for the winter months. We will make editorial mention, free of charge, in our next issue, of those who have queens on hand ready to ship.

POLYGLOT ORDERS.

We not only receive orders in English poorly written, poorly spelled, and as indefinite as any thing can possibly be, but we occasionally have orders from our friends across the water, couched in three different languages, particularly when the writer lives on the border line between two or three countries, such as Switzerland, where French, German, and Italian are pretty well mixed up. A postal card before us starts off in French, then copies some English from our price list, substituting German adjectives, and then winds up in French. A very convenient thing is to have a linguist who can read any of the three languages,

CONVENTION NOTICES.

The American International Bee-keepers' Association will meet in the Court-house, Brantford, Canada, Dec. 4, 5, 6, 1889. All bee-keepers are invited to attend. State and district bee-keepers' societies are invited to appoint delegates to the convention. Full particulars of the meeting will be given in due time. Any one desirous of becoming a member, and receiving the last annual report, bound, may do so by forwarding \$1.00 to the secretary.
R. F. HOLTERMANN, Sec'y.
Romney, Ont., Can.

TO THE BEE-KEEPERS OF MISSOURI.

After conferring with several bee-keepers, and at their request, I hereby make a call to the bee-keepers of Missouri to meet at Higginsville, Mo., on Thursday, Nov. 14, 1889, for the purpose of meeting in convention, in order to form an association; meeting to commence about 9 A.M., to last for one day

or a mixture of the three. No matter whether it is poorly written, or even written in three languages, or a mixture of the three, our proof-reader, some way or other, manages to decipher it. This is not written to encourage polyglot writing, but to show how the people of this world do write sometimes in conveying their wants. Now, do not get discouraged, friends. We are not finding fault, but the contrary. If writing postals in three languages is the best you can do, keep on and we will do the best we can for you. You remember the central thought of Our Neighbors this issue is about neighbors who speak to us in unknown tongues.

MOODY'S SERMONS.

ABOUT a year ago, or perhaps a little more, there was quite a disappointment because we were unable to get any more of the books entitled "Moody's Best Thoughts and Discourses." We wrote to the publishers, but could not induce them to get out another edition. One of the best things in regard to the book is, that whenever it got into a neighborhood it was loaned right and left until it got worn out. For ten years past I have kept a copy in our county jail, and almost every prisoner that gets in there was sure to read Moody. After the books were gone I tried to get even a single copy to put in the jail, but I failed. Imagine my astonishment when I found out, a few days ago, that our boys had a couple of copies of Moody's Sermons in their cheap library; but instead of being 75 cts. and postage, as is the book mentioned above, the price is only 30 cts.; by mail, 10 cts. additional. One of the books is entitled "Evenings with Moody and Sankey;" the other, "Hold the Fort." The latter contains quite an extensive biography of Moody and Sankey, as well as of P. P. Bliss, the author of many of the Moody and Sankey Gospel Hymns. The other is simply a collection of sermons. It also contains an account of the revival convention held in the city of New York, in March, 1876. Each of the books contains many of the best sermons heretofore found in the Best Thoughts and Discourses. As the books contain nearly 300 pages each, they are wonderfully reasonable. For some time I have lamented that there were not more good *moral* books in our cheap library. Both of these books are intensely interesting. If you just lay them around, almost everybody will read them; and I hardly need add, that nothing in the shape of a book has a more moral tendency, or a more elevating tone, than these reports of Moody's Sermons. I can not tell you how glad I felt when I found them for sale in our store, at the low price of 30 cts. each.

SEEDSMEN, AND A LITTLE PLEA FOR THEM.

I HAVE quite a good many times heard severe and uncharitable remarks in regard to seedsmen because of their enormous profits. Somebody, for instance, grows a crop of seeds for a seedsman. The seed is furnished him to plant, and he sells matured crops, say for from \$4.00 to \$5.00 a bushel. A few months later, when the catalogue comes out, the price may be perhaps \$15.00 or \$20.00. It looks bad, I confess; and I, too, used to indulge in severe criticisms. Since I have been dealing in expensive seeds, especially of novelties or untried things, I have had my eyes opened a little. At present our seed catalogue quotes the Ignotum seed at \$15.00 a pound, while we are paying only \$4.00 for the same amount. Why this great discrepancy? I will tell you. In our basement is quite a lot of seeds that have cost

me large sums of money. Some of them are old and worthless; others are not worth a quarter what I paid for them. I was foolish in buying more than the market demanded; yet we have been so greatly annoyed by being out of certain seeds when there came an unexpected demand for them that I have decided I would rather have considerable to throw away than to vex people by telling them we were sold out, or that we could not get any more without paying twice as much as we have been selling them for. No seedsman can tell how much he is going to need of any thing. Of course, he can tell something by past experience; but even with the best judgment he can bring to bear, he frequently gets badly "left." Now, I do not know how much Ignotum seed can be scraped up as the product of the seeds we gave away last spring; neither do I know how much is going to be called for. It is very desirable, however, that we have enough seed on hand to furnish some to every applicant. It is also exceedingly desirable for me not to have 25 lbs. (that cost me \$100) uncalled for. I have not yet sold a pound for \$15.00; but I have sold 6 lbs. for \$36.00, and 2 lbs. for \$20.00; and 8 lbs. is about all I have been able to buy so far. A good many seedsmen have asked me my best present figures. If any of you prefer to advertise what seed you have, rather than to sell it to me for the small sum of \$4.00 per lb., I am willing you should do so, for I have not told this little story to excuse myself, but simply to let you see how difficult a matter it is for a seedsman who expects to fulfill all his promises, and to supply all demands that come to him for seeds. Before spring the price of the Ignotum seed may be less than \$4.00. It may also be more than \$15.00. Supply and demand must decide. With alsike clover and Japanese buckwheat, of course the case is far different. What we buy for a dollar we can well afford to sell for \$1.25, because they are established staple seeds; but it must be remembered, that a bag substantial enough to stand shipping by freight must be furnished for each bushel, half-bushel, or even peck, and there is also some danger of having several hundred bushels of buckwheat on our hands, that cost us over \$1.00 per bushel, that *might* have to be sold for even less than a dollar. Seedsmen quite frequently sell even staple seeds at less than cost; therefore they can not bring the purchase price and selling price so near each other as one might, in taking a cursory view of the matter, think they should.

PURE WATER IN GREAT ABUNDANCE.

PERHAPS 20 rods from where I am writing this there is a rise of ground, and it goes up a little higher than any other ground in the corporation, or, in fact, in the vicinity of Medina. When I was a boy in my teens I often used to look at it longingly, thinking what a grand place it would be for a windmill. Windmills were my hobby then. But I did not suppose that it would ever be my good fortune to possess the ground, or perhaps to have money enough to build such a mill as I had in my mind's eye. So I contented myself with making a home-made windmill to do the churning for mother. That was thirty years ago, when windmills for pumping were almost unknown. They now dot the landscape everywhere; and within the past few months Providence has seen fit to permit me to make a purchase of that hill I have had my eyes on for over thirty years. Three days ago, as we

looked from the windows of the office, we could see, sharply outlined against the sky, the derrick, engine, walking-beam, and other machinery for drilling an artesian well. The drillers had been working for more than a week, exploring for pure water from the depths of the rock. We expected to be obliged to go down at least 150 or possibly 200 feet, on account of the elevation. Imagine the pleasant surprise, however, to find a vein of water at a depth of 97 feet and 5 inches that gave a flow of water equal to at least 500 barrels per day, and *may be* a thousand. We are now planning for the erection of a 2000-barrel tank, to be placed over the well and a windmill capable of raising 1000 barrels per day to spread its wings over it. Even if this reservoir stands on the ground, the elevation is sufficient to throw water on the roof of every building on our grounds; and last, but not least, to furnish, we hope, 1000 barrels of water per day for irrigating the strawberries and garden-stuff. We are just now rejoicing over this, another of God's gracious gifts. Well, the drillers have folded their tents, and the engine is to-day, Oct. 31, smiting the rock down on the creek-bottom ground, to see if it is not possible that some other gift was stored away, ages ago, through God's loving kindness for his children of this 19th century; and it reminds me again and again of the promise, "But the water that I shall give him shall be unto him a well of water springing up into everlasting life." We are planning to have all our buildings fitted with automatic sprinklers over all our ceilings, so that, if a fire should break out at any time of day or night, when nobody is around, the faithful little piece of mechanism will commence to drench the flames with water until one of two things happens—till the fire goes out, and somebody comes and stops the running water, or till that 2000 barrel tank gets empty.

THE OREGON STRAWBERRY, AGAIN.

OUR young friend Seth Winquist has just mailed us a plant, or clump of plants, in full bearing; and he packed them so nicely in moss that it reached us in perfect order. A single plant contained blossoms, growing strawberries, and ripe fruit, the latter in a state of perfect preservation, except some bruises. This single plant contained perhaps forty or fifty berries, green and ripe. One thing is certain, the berry does wonderfully in Oregon. Whether or not it will do the same here, remains to be proved. Those he has sent us are growing, but the growth is so far rather feeble. This, however, is nothing strange for the month of October. We are testing them, both in the greenhouse and outdoors.

SPECIAL NOTICES.

SPIDER-PLANT SEED.

Please do not send us any more of the above seed until further orders.

STRAWBERRIES FOR GROWING UNDER GLASS.

The new Jessie seems to be one of the most promising varieties for this purpose. If ordered before the ground freezes, say any time during this present month, the price will be the same as in the summer-time—10 cts. for 10; 75 cts. per 100. If wanted by mail, add 5 cts. for 10, or 20 cts. per 100.

FOTTLER'S BRUNSWICK CABBAGE SEED.

Several have inquired whether the Jersey Wakefield were the only stock seed we were prepared to furnish. It is the only kind, with one exception, and that is Fottler's Brunswick. It was raised by

H. A. March, in just the same way he raises the Wakefield. The price will be just the same; namely, 20 cts. per ounce, or \$2 50 per pound. The usual postage is to be added, if wanted by mail.

LETTUCE-PLANTS FOR COLD-FRAMES, HOT-BEDS, AND GREENHOUSES.

We have beautiful plants now ready to take from the seed-bed, of Grand Rapids, Boston Market, or Landreth's Forcing. Price 20 cts. per 100, or \$1.50 per 1000. If wanted by mail, add 10 cts. per 100, or 50 cts. per 1000. The above three are the most suitable for growing under glass, of any we have tried. Landreth's Forcing is much like Boston Market, only the heads are smaller, and it makes heads a little sooner. Grand Rapids does not make a head at all, but is fit for use at every stage. When successfully grown, however, in good soil, the stalks frequently weigh a pound or even two pounds each. The latter is the leading winter lettuce now, I believe, of the world.

SEEDS AND PLANTS IN NOVEMBER.

I presume that seedsmen ordinarily have very few orders during the present month. GLEANINGS, however, has such a wide field that it is time to make garden, at least in some of the homes where it goes, every month of the year. During the past two or three days we have been having quite a lively trade in seeds, from friends in Florida and California; and we are filling an order to-day, Oct. 30, for 1000 cabbage-plants, to be sent south, that will stand in the open air safely all winter. This reminds us that, if anybody wants cabbage-plants during the winter-time, from friend March's stock seed, we shall be very glad indeed to furnish them at regular spring prices, by giving us a little notice beforehand.

WHITE-POPULAR ONE-PIECE SECTIONS.

We have just got in several thousand feet of white-poplar lumber, which is much whiter than the best basswood. We made some of it into one-piece sections, and they fold without breaking as well as basswood, for any thing we can see. We will mail a sample to any one on receipt of 4 cts. to pay postage. If we get all the lumber we want, we shall probably be able to furnish them for 50 cts. per 1000 more than basswood. For the present, however, the price will be \$1.00 extra on each 1000. If any of our readers in Ohio and adjoining States live in a region where white poplar abounds, we should be glad to hear from them. The encouraging thing about this is, that we get a better-looking section, and at the same time stop to some extent the consumption of basswood, one of our best honey-producers.

PRICE OF ONE-PIECE SECTIONS.

We have for two or three years past made a cut of 50c per 1000 on one-piece 1-lb. sections, along with other makers, till the price is \$3.50 per 1000. Several have written to know if we were going to reduce again this fall. We answer, No. The price is low enough. We have written to the principal manufacturers, and all agree that, for small lots, \$3.50 per 1000 is low enough. Bee-keepers have reason to be thankful that the price is as low as it is. Had we not gone to the expense of over \$1000 in bringing the patent suit to a successful issue, the price would be more likely \$4.00 to \$5.00 per 1000. Having gone to that expense in the interests of bee keepers at large, we should like to sell sections a *little* above cost to make up that expense. Of course, if other makers can furnish sections in small lots for less than \$3.50, they are welcome to do so; but we think it would be better to have a uniform price.

GLEANINGS FREE TO NEW SUBSCRIBERS FROM NOW TILL JANUARY.

Our annual premium list will be out with the next number—that is, Nov. 15. It will be at least 20 pages with a cover, and there will be many inducements for repaying a little effort on your part in soliciting your neighbor bee-keepers to subscribe. We do not believe in praising up our own publication, as many do, and say it is better than ever before; and, in fact, we don't need to. We have the kind words of many readers, telling us how you appreciate our efforts toward making GLEANINGS valuable. The more names you can send us, the better we can make it. As an extra inducement, you may offer the rest of this year

free to new subscribers. Remember it is only the numbers remaining after the subscription is taken that we give free, so it is to their interest to subscribe at once. When the premium list comes out with the next number, we will make further announcements; and we trust many of you in the meantime will secure a good number of names.

A BUSH LIMA BEAN AS LARGE AS THE POLE LIMAS, AND AS EARLY.

Mr. J. Atlee Burpee has been kind enough to send me a single plant, that in every respect seems to be like the Henderson or dwarf Sieva lima bean, only the pods are full size. He will offer the beans for sale next year in limited quantities, but as yet no price has been fixed on them. This bean, we are told, was from a sport from the regular pole lima beans, and is just like them, except it does not need a pole to run on.

ADVANCE IN THE PRICE OF HONEY-EXTRACTORS.

We have sold, in the past, over 10,000 of our Novice honey-extractors, and the complaints in regard to them have been very few indeed. Some few, however, have complained that they are too light, and others that the honey-gate is a little too small, so that real thick honey will not run through it as fast as it is extracted. Another source of complaint has been that the honey was thrown over the edges because the can was not quite deep enough. We have decided to remedy all these defects, but will not be ready to place any new machines on the market before March or April. We make this announcement at this time so that, when new lists are printed, the correct price may be put in. We have outlined the improvements to be made, as follows: The bore of the honey-gate at present is $1\frac{1}{2}$ inches. We expect to make it about $1\frac{1}{4}$ inches. We have heretofore made the extractors of IX tin, and of several pieces. We have ordered a special importation of IXX tin in large sheets, so as to make one entire can of one sheet. These sheets are large enough to make the cans two inches deeper than at present, to prevent the honey from being thrown over the edge. The bottoms of the large cans, 20 inches in diameter, will be IXXX tin. These extractors will be worth fully twice as much in point of wearing qualities as the old ones, and yet we shall advance the price only to what it was two or three years ago; namely, \$1.00 more than the present price. The revised price will be as follows: Numbers 1, 2, 3, 4, and 5, \$7.00 each. No. 6, \$7.50; and Nos. 7, 8, and 9, \$8.00. We will also furnish an upright gearing, which some prefer, for 50 cents additional. We shall then have, we think, the best extractor, for the money, in the market.

KIND WORDS FROM OUR CUSTOMERS.

The queen shipped in August was received in good order, and has been safely introduced twice. I have hatched some fine queens from her.

ARTHUR SHEPARDSON.

Freeport, Wash. Ter., Oct. 10, 1889.

The plants were received in good condition. I am surprised at the size of the asparagus-plants. I did not suppose they would be so large at that price.

K. A. CLARKE.

Groton, Conn., Sept. 23, 1889.

GOOD ADVERTISING.

Please tell the friends not to send me any more orders this fall, for I have as many booked as I can fill. I return seven orders to-day, which I could not fill. Does everybody take GLEANINGS?

Morgan, Ky., Sept. 24, 1889.

J. P. MOORE.

The 60-lb. square tin cans are received, and are very nice. I have been shipping honey to all parts of the U. S. Surely it pays to advertise in GLEANINGS.

E. J. BAXTER.

Nauvoo, Ill., Oct. 14, 1889.

The goods I ordered of you arrived safely and in good order. I am much obliged for your prompt attention. Although I live in the northern part of Michigan, I was extracting with the extractor the fourth night after ordering it.

GEO. HALL.

East Tawas, Mich., Aug. 4, 1889.

VALUE OF THE HONEY COLUMN AS AN ADVERTISING MEDIUM.

I received an offer from Plymouth, Ohio, for the rest of my comb honey, and all my extracted, in answer to your insertion of my advertisement of honey for sale, and I am more than ever convinced of the value of GLEANINGS, both to producers of and dealers in honey and supplies, and tender you my sincere thanks for the favor. W. R. HASLET.
St. Anthony, Ia., Oct. 7, 1889.

I write to inform you that the Barnes combined saw came all right, and in good time. The reason I have not written sooner is, I wanted to try it before I said any thing about it. I have worked in wood for the last 45 years, so that I think I am competent to judge about the work it will do. It does all you claim for it, and will fully answer all the purposes that I desire. Many thanks to you and the Barnes Brothers for the machine, which I think now I can't do without. THOS. CHAPMAN.
Rocheport, Mo., Oct. 14, 1889.

A KIND WORD FOR GLEANINGS, TOGETHER WITH A GOOD TESTIMONY FOR CHRIST JESUS.

Dear Friend:—May the Lord bless your good work in the Master's vineyard, is my prayer. I read GLEANINGS, and it does make my heart rejoice to see the good work go on. I read GLEANINGS with pleasure. So far as the smokers are concerned, I hold that, if the heart is clean, the mouth will be clean too; for out of it are the issues of life. I have not used tobacco in any form since my conversion. G. D. KUNKE.
Sprague, Wash. Ter., Sept. 25, 1889.

A PLEASED A B C SCHOLAR AND HIS SUCCESS.

Those nice honey-jars arrived all O. K., as they were packed very nicely indeed, and I am much pleased with them, as also the vise and match-safes. I took the premium again at our State Fair, and almost everybody expressed themselves as seeing the finest honey in the world, and those nice white sections of yours "took the cakes." "Oh what nice white honey!" or, "how nice and clean those sections look!" As they looked on, they found some very fine extracted honey in your glass jars; also the expressions I heard were numerous, and greatly to the credit of A. I. Root; for if it had not been for him and his A B C, I am pretty sure I should not now be so far advanced, for it was only a few years ago that I was a perfect "novice" in the business, and had not even seen a queen; but now I am pretty sure I can tell one, as I breed all my queens myself. Well, I think that, if we all try to put our honey up in good shape, and in nice and attractive packages, we shall all do well. For instance, here in my own town of Reno there is lots of honey brought into the market which sells for from 12 to 15 cts. per lb., and I command \$20 to \$25 per hundred pounds. Now, how is it? I will tell you. The former is brought in boxes, leaky, and partly filled, and the very looks of it is enough to condemn it, while that of mine is all clean, and packed in your nice 12-lb. shipping-boxes, and, as a gentleman said to me yesterday, "You deserve a great deal of credit for putting your honey up in such attractive packages." You know the ones I got of you with glass on both sides, so they would show three sections on each side. I have just received a premium from San Francisco, from the Mechanics' Fair, the finest and best in the State of California. I try hard to do my best, and I hope all others will do the same. E. A. MOORE.
Reno, Nev., Oct. 17, 1889.

LITHOGRAPH LABELS.

In 12 Colors, at \$2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring $2\frac{1}{2} \times 2\frac{3}{4}$. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; \$1.20 for 500; \$2.00 for 1000. A. I. ROOT, Medina, O.

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Cheap TUMBLERS & MUGS

If you intend to put up any extracted honey in glass for the retail trade it will pay you to send a postal to the undersigned for price list of tumblers and mugs, also labels suitable for the same.

20 21-22d

M. H. TWEED,

154 Webster St., Allegheny, Pa.

In responding to this advertisement mention GLEANINGS.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75

PER M. SHIPPING-CASES VERY LOW.

SEND FOR PRICES.

COODELL & WOODWORTH MFG. CO.,

31fdb

ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

BEES

16tfdb

SEND for a free sample copy of the BEE JOURNAL—16-page Weekly at \$1 a year—the oldest, largest and cheapest Weekly bee-paper. Address

BEE JOURNAL, Chicago, Ill.

RERUM COGNOSCERE CAUSAS,

TO know the Causes of Things, is the key to Success in any industry. If you wish to succeed in the Bee Business, you must read and become acquainted with the most Successful Methods of Bee-Management and Honey-Production.

LANGSTROTH'S WORK,

REVISED BY DADANT,

Contains the result of practical experience with Bees. It gives the Physiology of the Bee, with numerous Quotations from the latest Scientific Writers, the Description of the best Hives, Directions for the Proper Management and Handling of Bees; the most Practical Methods of Queen-Rearing, Swarming (Natural and Artificial), with controlling methods; instructions on Establishing Apiaries, Transferring, Shipping, Mailing, Feeding, Wintering; the best methods of producing Comb and Extracted Honey, the Handling and Harvesting of Honey, the Making of Comb Foundation, etc., etc.

The instructions for the Rendering of Bees-wax are alone worth the price of the Book, to many bee-keepers who waste a part of their wax in rendering it.

This book, "the most complete ever published," is shortly to be published in the French, Italian, and German Languages, by Practical European Apiarists. It is highly recommended by all publishers of Bee-Literature in the Old World as well as in the New.

Cloth Binding, 550 Pages, 199 Engravings, 19 Full-Page Plates. Gilt front and back. This book is an Ornament to any Library.

Price: By Express, \$1.85. By mail, prepaid, \$2.00. Special prices to Dealers who wish to advertise it in their circulars.

We also offer for Sale, 20,000 Lbs. of Honey, of our crop of 1889; 25 Tons of Comb Foundation, Smokers, Bee-Veils of Imported Material, etc. Send for Circular. Address

31fdb

CHAS. DADANT & SON,

Hamilton, Hancock Co., Illinois.

In responding to this advertisement mention GLEANINGS.

Honey Almanac for 1890.

JUST THE THING needed to create a DEMAND for HONEY at home. Bee-keepers should scatter it freely. It shows the uses of Honey for Medicine, Eating, Drinking, Cooking, for making Cosmetics, Vinegar, etc.; also uses of BEESWAX. Price 5 cts.; 100 for \$2.50; 500 for \$10.00; 1000 for \$15.00.

THOS. G. NEWMAN & SON,

21-22-23 923 & 925 W. Madison St., Chicago, Ill.

In responding to this advertisement mention GLEANINGS.

NOW READY TO SHIP!

Pedigreed Poland China Pigs from 6 to 12 weeks old, from \$5.00 to \$12.00 per pair. White and Black Ferrets, single male, \$2.50; female, \$3.00; per pair, \$5.00; per trio, \$7.00. White Rabbits, White and Brown Leghorn Chickens, and Mallard Ducks, \$1.00 each, either sex. Italian Bees in season, very reasonable. Address

N. A. KNAPP,

Rochester, Lorain Co., Ohio.

In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

We are now selling our No. 1 V-groove sections, in lots of 500, at \$3.00 per 1000; No. 2 sections at \$2.00 per 1000. For price of Italian queens, foundation, smokers, etc., send for price list.

J. STAUFFER & SONS,

Successors to B. J. Miller & Co.,

16tfdb

Nappanee, Ind.

In responding to this advertisement mention GLEANINGS.

THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicultural literature; points out errors and fallacious ideas; and gives, each month, the views of leading bee-keepers upon some special topic. Three samples free.

W. Z. HUTCHINSON, Flint, Mich.

In responding to this advertisement mention GLEANINGS.

KIND WORDS FROM OUR CUSTOMERS.

THAT BEAUTIFUL TESTED QUEEN.

That beautiful select tested queen arrived all right on the 25th of last month. I am well pleased with her. I think I have been successful in introducing her.

THOS. A. HARRISON.

Burnet, Texas, Nov. 4, 1889.

I have been without a timepiece for some weeks, and feel so lost I am constrained to write you for another watch. The one for which I sent you four dollars was such a beauty that, as soon as received, it was vowed to a nice girl, so I want another, though a cheaper one, for myself.

Tuscaloosa, Ala.

J. A. GOREE.

I received the smoker a few days after I sent. When I opened the package I was surprised to see such a new style. I have seen different kinds of smokers, but none so fine as that. I showed it to several of my friends, and they said that they will get one next spring. I am well satisfied with the smoker. I would not have any other kind.

Rahway, N. J., Oct. 27, 1889. V. N. BAGLEY, JR.

A GRAND EXCURSION THROUGH THE WEST.

Please state that a grand excursion leaves York, Neb., Dec. 3, for Washington Ter., via Denver and Colorado Springs, Salt Lake, Sacramento, Cal., Salem and Portland, Oregon, to Seattle; thence back, probably by Spokane Falls and Cheyenne to the starting-point. Round trip for \$60.00. Reduced hotel fare, and best of privileges; our own car clear through. We should like to have Uncle Amos along. He might see some fine views to snap his Kodak at; and, indeed, we expect to have a good time. Any one wishing to go, please apply to me for any other information.

R. R. RYAN.

Bradshaw, Neb., Nov. 2, 1889.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—There is a fair demand for comb and extracted honey. Western comb is arriving freely; and although our market is not overstocked, prices have to be shaded in order to make sales. Off grades and mixed comb honey is accumulating, and there is no demand for the same. Several lots we sent out were rejected on account of poor quality, and left on our hands. Such honey will have to be sold at whatever price it will bring. We quote: Fancy white, 1-lb. sections, 14@15; 2 lbs., 12@13; off grades, mixed, etc., 10@12; buckwheat, 1 lb., 10@11; 2 lbs., 9. Extracted, white clover and basswood, 7½; orange bloom, 8½; California, 7½; buckwheat, 6; Southern strained, 70@75c per gal.

HILDRETH BROS. & SEGELKEN,

Nov. 6. 23 and 30 West Broadway, N. Y.

CHICAGO.—*Honey.*—Honey is selling quite well at the following prices: 13@14 for choice to fancy white comb in 1-lb. sections, where cases and frames are equally desirable. White comb in 1-lb. sections, not choice, in some necessary way sells at about 12; 1½ to 2 lb. frames, white, 10@12. Fall honey, buckwheat, etc., 8@10. Extracted, dark to extra white, 6, 7, and 8. Arrivals are about as usual for the season, when there has been a fair crop. *Beeswax.*—Yellow, 25; dark, 20.

R. A. BURNETT,

Nov. 9. 161 South Water St., Chicago, Ill.

ALBANY.—*Honey.*—Market is depressed under heavier receipts and lighter demand. The crop is turning out to be much heavier than represented, and the best price of the season has been made. We quote: White, No. 1, 14@15; No. 2, 12@13; mixed, 11@12; buckwheat, 10@11; common, 8@10. Extracted, buckwheat, 6½@7; clover, 8@8½.

Nov. 11. H. R. WRIGHT, Albany, N. Y.

CINCINNATI.—*Honey.*—There is no boom in the honey market, but demand is fair for extracted honey at 5@6c on arrival. There is also a fair demand for comb honey, at 14@16c in the jobbing way for best white in 1-lb. sections. Arrivals are plentiful. *Beeswax.*—Demand is good at 20@22c on arrival, for good to choice yellow.

CHAS. F. MUTH & SON,

Nov. 9. Cincinnati, Ohio.

MILWAUKEE.—*Honey.*—The movement of honey is slow, yet a steady consumptive demand exists. Choice white, 1-lb. sections, 14@15; 2 lbs., 13@14; old dark, 1 lb., 10; new dark, 1 lb., 10@11. Extracted, white, barrels and kegs, 7@8; tin and pail, 8@8½; dark, barrels, 6@6½; kegs, 6@7. *Beeswax* in demand at 22@23.

A. V. BISHOP,

Nov. 11. Milwaukee, Wis.

KANSAS CITY.—*Honey.*—White 1-lb. sections, 13@14; dark, 10@12; white, 2 lb., 12@13; dark, 10@12. Extracted, white, 7@8; dark, 5@6. *Beeswax*, none in market.

CLEMONS, CLOON & CO.,

Nov. 4. Kansas City, Mo.

ST. LOUIS.—*Honey.*—Market steady. Better inquiry. Comb, 12½@14 for choice; 8@10 for inferior. Choice extracted, 5½@6; dark, 5@5½. *Beeswax.*—Prime, 22.

D. G. TUTT GROCER CO.,

Nov. 11. St. Louis, Mo.

PHILADELPHIA.—*Honey.*—We have a clever demand for pure extracted honey, in small good-style packages, at 10@12½c; and fair demand for 1 lb. sections, at 14@16c.

PANCOAST & GRIFFITHS,

Nov. 5. 122 Dock St., Philadelphia, Pa.

DETROIT.—*Honey.*—Comb honey is selling quite freely at 13@15c. Supply is about equal to the demand. Dark or fall honey is more plentiful than white. *Beeswax*, 24@25.

M. H. HUNT,

Nov. 11. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—White, 1-lb. fancy, 14; good, 13; dark, 11; white, 2 lb., 13. Extracted, white, 7; dark, 6. Demand good. Bee-men find sellers at above prices.

HAMBLIN & BEARSS,

Nov. 11. 514 Walnut St., Kansas City, Mo.

FOR SALE.—One ton of nice comb honey in 1-lb. sections. I want 12½ cents, on board cars.

22d N. L. HIGBIE, M. D., Elsie, Clinton Co., Mich.

FOR SALE.—Comb honey by

M. ISBELL, Norwich, N. Y.

WANTED.—Honey. Write to

CHAS. S. STRONG, Plymouth, Ohio.

FOR SALE.—White-clover honey in 63-lb. cans (2 in a case), or 12-lb. cans (10 in a case), at 8c, or 7½ in barrel lots.

H. W. TUNK,

Box 1156, Bloomington, McLean Co., Ill.

FOR SALE.—I have 6000 lbs. of fine light yellow honey, basswood and goldenrod mixed, in barrels, weighing from 200 to 600 lbs. What am I offered?

E. S. FOULKS, Grant Center, Monona Co., Iowa.

FOR SALE.—100 lbs. of buckwheat honey in 1-lb. sections, and 100 lbs. of clover extracted in tin pails, all at 9c. per pound.

H. A. HUBBARD,

New Lisbon, N. Y.

FOR SALE.—1000 lbs. of basswood extracted honey in 60-lb. shipping-cans, at 10 cts. per lb., and 500 lbs. of white comb honey in 1-lb. sections at 15 cts. per lb., delivered f. o. b. Address A. P. SHARP,

22d Exeter, Luzerne Co., Pa.

FOR SALE.—About 600 lbs. of A No. 1 basswood honey, 7c per lb., in barrels or 70-lb. cans. No charge for packages. You need not send for samples. I will guarantee it first-class in every respect.

H. O. McELHANY, Cedar Rapids, Iowa.

FOR SALE.—200 lbs. of No. 1 clover and 500 lbs. of heart's-ease honey, in 1-lb. sections, put up in glass-front cases holding 24 lbs. each. I will sell the clover honey at 13c, and the fall honey at 11½c per lb.

22d G. D. BLACK, Brandon, Buchanan Co., Iowa.

FOR SALE.—About 2500 lbs. of white-clover honey. About half of it is in 12-lb. cans, 12 in a box, and half in 60-lb. cans. Cans all screw top, and nicely labeled. How much am I offered for the lot on track here?

E. A. SHELTON,

22d Independence, Buchanan Co., Iowa.

FOR SALE.—I have a quantity of choice clover honey in scant 1-lb. sections, and 12-lb. cases, at 15c per lb. (100 lbs. or more). Also 60-lb. screw-cap cans of extracted clover honey at \$4.90 per can; 2 cans in 1 box, \$9.60. Safe arrival guaranteed by freight.

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

17tfdb

FOR SALE.—I still have about 4000 lbs. choice extracted white-clover honey. I have also about as much nice Spanish-needle honey, which I consider as fine as the best goldenrod. Write me for price list.

EMIL J. BAXTER, Nauvoo, Han. Co., Ill.

21tfdb

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

MAILED IN DECEMBER.

Enlarged, and prices reduced. It gives LOW SPECIAL FREIGHT RATES to many Southern points, especially to points in TEXAS.

Southern Bee-Keepers, send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.

In responding to this advertisement mention GLEANINGS.

SECTIONS and FOUNDATION.

WHOLESALE AND RETAIL.

All supplies cheap. Send for new price list free.

22tfdb

W. D. SOPER,

Box 1473.

Jackson, Mich.

65 SWARMS OF ITALIAN BEES. Langstroth hive, Gallup frame, 60 to 80 lbs. of honey in each. Price \$5.00 on board cars. Address

22d N. L. HIGBIE, M. D., Elsie, Clinton Co., Mich.



Vol. XVII.

NOV. 15, 1889.

No. 22.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries NOT of the U. P. U., 42 cts. per year extra.

OUT-APIARIES, NO. XIX.

GETTING READY FOR WINTER QUARTERS.

IF you do not cellar your bees, the matter of getting the out-apiaries ready for winter differs nothing from the home work. If you cellar them, there may be a chance to put them in a cellar right where the out-apiary is located; but that is not so very likely. Possibly you may do well to build a cheap cellar or cave, perhaps after Doolittle's plan; only feel your way, for you are not sure that soil and other things are the same with you as with Doolittle. If the bees are to be hauled home you will do much the same as in hauling them out in the spring, only more care will be needed to avoid jarring or breaking down the combs, for they are heavier with honey and bees than in the spring, and a break in the fall is worse than in spring, for we want as much quiet in the fall as possible. Manage to have all handling of frames done some time before hauling, if you depend on the bees to fasten the frames. You are not so likely to have bad roads in the fall. As soon as frost has finished up fall pasturage, the bees may as well be got home, and at the latest they should be got home in plenty of time to have at least one good fly before going into the cellar. If the weather is quite cool you may be able to go at any time of day and shut them in the hives; but the probability is that you will need to go quite early in the morning for your first load, and wait till 4 or 5 o'clock before you can shut up your second load. If the weather is tolerably warm, you may find it best to fasten up your morning load when you go for your evening load; that is, fasten up in the afternoon twice as many as you can take at one load, and then you needn't be in such a hurry to start early in the morning. After frost in the fall, on a warm day the bees will be flying in good sea-

son in the morning, but will stop flying comparatively early in the afternoon, as they probably find nothing to do. If you want to haul three loads in a day, unless it is pretty cool you will not be able to shut up the bees at the time of going for your second load, and must shut them up in the morning, unless, indeed, you shut up all in the evening.

In the revised edition of Langstroth on the Honey-Bee, Dadant says: "We usually replace the bottom-board by a wire-cloth frame protected by slats. The entrance should never be covered with wire cloth, but should be entirely closed, for the old bees will worry themselves trying to get through it, and it will soon be clogged with dead bees." This probably refers to shipping bees long distances; but if your hives are so constructed that you can easily give them ventilation elsewhere, it may be well to have the entrance closed. Still, I have hauled hundreds of colonies with no ventilation except wire cloth at the entrance.

Upon bringing them home, place your hives conveniently near to the cellar door; and if you are much crowded for room, you can put one hive on top of another. I have sometimes piled them three high. Putting them in pairs also economizes room, and the pairs may be two or three high. If your ground is dry the hives need nothing under them; otherwise it is well to have something to keep the bottom-boards off the ground, if it be nothing more than two sticks of stove-wood under each hive. In setting out the hives in the spring they can be placed the same as they were in the fall—I don't mean each hive in the same place it occupied in the fall, but close together, two or three in a pile, near the cellar. If you use hanging frames, try to avoid all handling of frames for some time before hauling home, and until they are again placed in the out-apiary the following spring.

I don't need to caution you about being careful to

shut up your hives *very* securely, and look out for horses being stung, for you had some experience when you hauled them the previous spring, and very likely got into some trouble which made you wish you had never undertaken to haul bees. I may mention, however, that you have more bees in a hive in the fall, and, if there is any difference, they are crosser.

C. C. MILLER.

Marengo, Ill.

Friend M., your directions are exceedingly valuable. Every line indicates that you are writing from practical experience, and I think it will be well for the A B C class to read this chapter over and over.

A MODEL BEE-YARD.

FRIEND BOARDMAN TALKS TO US ABOUT HAVING THE GROUND CLEAN AROUND THE HIVES.

“THAT’S good enough, Ed. You may consider this job begun. You’ll not need to hurry; take your time for it, and peel the turf all off the yard as you have begun here. There’s nothing particularly driving now, and I believe this is a work that will pay well.

“The apple will be in bloom in about two weeks; and if it does not give the bees a lift I shall have to do considerable feeding. We shall be in time with this work, so that the ground will have a chance to settle and become solid so that it won’t get muddy if it should chance to be rainy about that time.”

The next day, toward night, as I came into the yard it presented a most ludicrous sight. The loose turf was rolled up in all conceivable shapes, and the alleys between the hives looked like a very roughly plowed field, with the hives planted down between the furrows.

“You have it all done, haven’t you, Ed? How much time do you think it has taken to make this yard look so horrid?”

“Oh! about a day and a half—not more than that.”

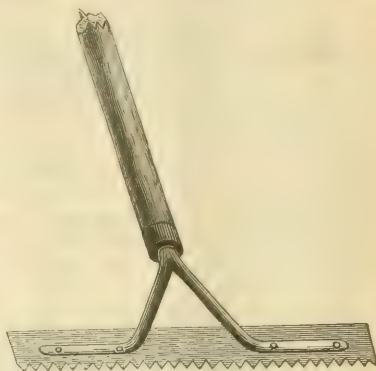
“Well, all right. I see you have to work with a veil on. This kind of work makes the bees a little cross. I wouldn’t blame them, if they take any kind of pride in their surroundings if they should sting every member of the human family at sight. But we’ll make this look better before we get done with it.”

“I’ll go to the cistern and bathe my eye where that little rascal stung me. Cold water is the best remedy for a bee-sting, I know of.”

“The yard is 60 x 85 feet, and contains at present 104 colonies. It would accommodate a much larger number without crowding. But I am not in favor of crowding colonies too close together. About 5 feet in the rows, with the rows 8 feet apart, gives a very convenient distance between the hives. I want ample room in the alleys to run a hand-cart or hive-carrier; and an open alley through the middle of the yard, wide enough for a wagon, is oftentimes very convenient.”

After enduring the sight of the yard in this torn-up condition for a few days, with no very good prospects for fair weather, nor sunshine enough to dry it out very much, I gave orders to have the turf gathered up and wheeled outside the yard, and dumped in a pile; and while this was being done I looked about and found a piece of crosscut-saw

plate, about 2½ feet long, which I carried to the blacksmith, and with his help I got up a tool to level and smooth the ground after the turf was removed.



BOARDMAN’S SCUFFLE-HOE, FOR CLEANING WEEDS AND GRASS FROM BEE-YARDS.

It was made by riveting a clift-shank upon the flat side of the saw-plate, so that a handle could be put on, and at the same time extending along the plate far enough to give the required strength. To this I attached a handle about 5 feet long. I called this tool a scraper. It has proven a most valuable and efficient tool, and about the only one needed to keep the yard in order. The expense of getting it up was, I think, about 30 cents to the smith, and a little not over-valuable time of my own in putting it together, not including any thing for the invention. If any bee-keeper should want one—please don’t hesitate about making it. It is not patented, nor shall I charge any thing for priority of invention.

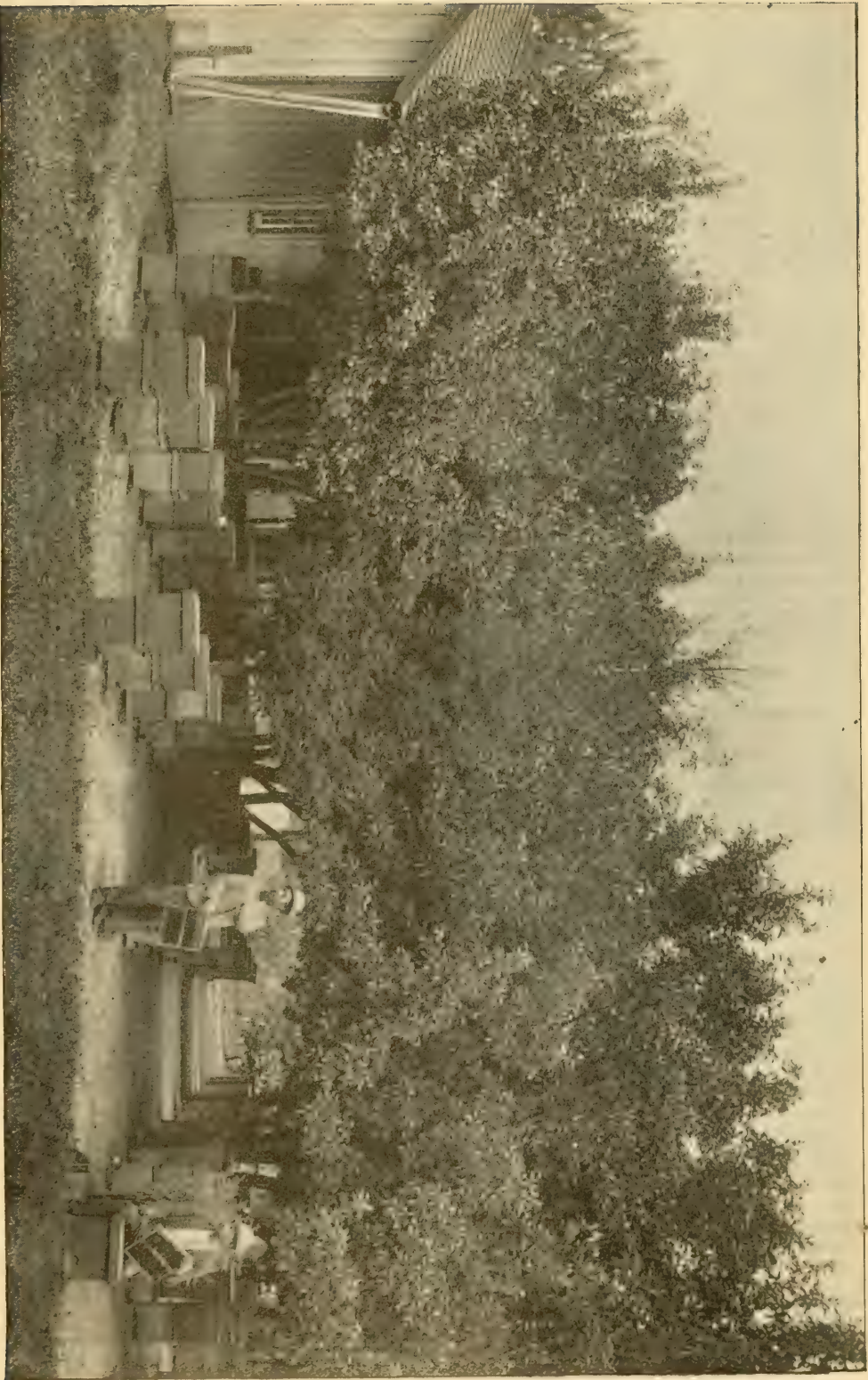
I was now ready for business. As I returned to the yard with the new scraper on my shoulder, the first object that met my sight was a huge mound of fresh dirt and turf, and Ed was posing upon its summit, holding a four-tined fork with which he had been at work, reminding me very much of the statue of Jove holding the thunderbolts in his hand.

“Hello! what have you here? This is a specimen for you.”

“I’ve got the bee-yard skinned, and this is the skin rolled up here. You are a taxidermist, and I thought may be you’d want to stuff and mount it.”

“Never mind. I consider it properly mounted now. I’ll tell you how I will dispose of it. I’ll use it in the garden, and I think it is worth all it has cost to remove it for that purpose.”

The new scraper even surpassed my expectations at the first trial, and it was not a long job, nor a hard one, to scrape the yard smooth and level in every part until it looked like a model croquet-ground. I was much better pleased with the job than I should have been with the first plan of making a dooryard for each colony, for now the scythe could be dispensed with entirely. It is the first time in my whole experience with bees that I have been entirely satisfied with the preparation of the ground in the bee-yard. I had some apprehensiveness that the ground would be muddy when a long rainy spell came; but my apprehensions were unfounded. It proved always, even during a long drizzling rain, much more pleasant working than on the grass ground. Of course, the ground is tiled, which helps to keep it dry, and no water can stand



"Now, Ed, that colony over there, C. L. is queenless; give it that nice frame of brood you have just taken out, and put this empty comb in there in its place."

on the surface more than a few minutes. Don't imagine now, that this excellence will be durable without labor and care. The new scraper hangs up on the side of the bee-house, where it is handy; and as often as it is needed it is run over the ground, which grows hard and smooth, and the weeds and grass disappear.

Now, my brother bee-keepers, I should like to have you see for yourselves the place I have been describing, and how pleasant I have made my apiary for myself and my bees. I would send you all a card of invitation to visit me, but I fear you would think this too much trouble, and so I have had a nice picture taken, showing a portion of my apiary, and have sent it to friend Root, who, may be, will show it to you in GLEANINGS. If he does I shall have the pleasure of presenting to you my model apiary, as well as myself and Ed. If I am sure you are anxious to know, I may some time tell you the advantages of keeping an apiary clean.

H. R. BOARDMAN.

East Townsend, Ohio, Nov. 1, 1889.

Friend B., we were exceedingly interested in that new instrument for keeping the ground clean. Although you do not say so, I presume the saw-plate is ground sharp all around, so as to be pushed and pulled like a scuffle-hoe. By the way, a scuffle-hoe will do more of this kind of work in an hour than a common hoe or any thing else will in half a day, if it is kept sharp, and used right. Your yard certainly looks very clean and nice in the picture, and the artist has given both you and your assistant so faithfully that we should almost know you from the picture.

WORKING FOR COMB HONEY.

DOOLITTLE TELLS US HOW HE DOES IT.

A CORRESPONDENT wishes me to give in GLEANINGS an article on how I work for comb honey. Although a little out of season, I will try to please him, for perhaps some may wish to arrange a few hives this winter to try my way of doing it. In order to make all plain, I will say that the hive which I use mostly is 24 inches long, 12 inches wide, and 12 inches deep. As the frames are but $11\frac{1}{2}$ x $11\frac{1}{4}$ inches square, they must, of course, go in the short way of the hive. Five inches from either end of the hive is placed a slotted division-board $\frac{1}{4}$ of an inch thick, which I used to use when I used side boxes in connection with the top boxes, and which comes very handy with my present management. This leaves a space of $12 \times 12 \times 13\frac{1}{2}$ inches for a brood-chamber in which 9 Gallup frames can be used. The front and rear of the hive is protected by 4 inches of chaff or fine straw, which is always left in place summer and winter. The entrance to the hive is a $\frac{3}{4}$ -inch slot cut from the bottom of the hive the whole length of the brood-chamber (or $13\frac{1}{2}$ inches long), and is regulated by entrance-blocks. At all times of the year, except the latter part of spring, as will be explained further along, the five-inch space on either side of the brood-chamber is closed by a strip of common cotton cloth being spread over the frames and down each side over the slotted division-boards. The five-inch space is now filled with a chaff or sawdust cushion, which is made so as to just fill the same, using one on either

side. When the bees are being prepared for winter, the sections are taken off, the ends of the cotton strips folded back over the frames, and a chaff or sawdust cushion, large enough to go over the whole top of the hive, chaff sides and all, is put on. Thus the bees are left during the winter, whether placed in the cellar or wintered on the summer stand. When spring arrives, the bees in these hives packed with chaff, etc., are stimulated by any or all of the ways familiar to the apiarist, till the nine frames are filled with brood. As the weather is always changeable in the spring and early summer, the chaff packing is a great help to the bees, by way of enabling them to maintain an even temperature, and thus the hives are filled with brood a little earlier in the season than they otherwise would be. As it is still too early for swarms to issue to the best advantage for the production of honey (the honey harvest not being yet at hand), and desiring all the bees possible at this season of the year (these bees are in reality our crop of honey), I remove the chaff cushion and cotton cloth from one of the five-inch spaces, and place three frames of brood, taken from the brood-chamber, beyond the slotted division-board, placing empty combs in the brood-nest in place of the removed frames of brood. In a week the other end of the hive is served in the same way, if the queen is prolific enough to lay as many eggs as such a course will require, which gives me, as will be seen, 15 frames in a hive, thus securing a large force of bees, with no disposition to swarm thus far. As the brood in the frames which are set over in the five-inch space should be sealed over when set there, it will be seen that, in 12 days, the brood should be all matured; and as the queen rarely goes into these spaces to deposit eggs, we have these combs devoid of brood, or nearly so, when the flowers begin to secrete honey. They can now be taken out and reserved for new swarms. If any of the combs I wish to take out still have brood in them, they can be used in building up weak colonies if we have such, or they can be placed in the upper stories to such hives as we are working for extracted honey, where they will be filled with honey as soon as the few bees remaining in the brood form are hatched. Meantime, if the flowers begin to yield honey of any amount larger than is consumed in brood-rearing, I put on the wide frames over the brood-chamber part of the hive, so the bees can go in them to store this first honey.

When I have decided that it is time to put on the sections, I take out the six combs which are beyond the slotted division-boards, place back the strip of cotton cloth and the chaff cushion in the same position they were in for winter, with the exception that the part of the cotton cloth which then went over the top of the brood-frames is now folded back over the cushions, when the queen-excluding honey-board is put on, which extends out over these side cushions to the sides of the hive. The wide frames of sections that had been on the hive before, if any had been put on, are now placed over the brood as before, while more are added at their sides, to the amount I think the colony will need. If none have been on the hive, then "bait sections," or those filled with empty comb, are placed immediately over the brood-nest to tempt the bees into the boxes at once. It will be easily seen, that the sections will be filled with bees at once under the conditions which now exist; and

that, if the flow of honey is good, it will not take long to have our bait sections filled, and work well commenced in the others.

Now, to secure the most honey for the rest of the season, I proceed as follows: When a swarm issues from a hive, the old colony is moved to a new stand, and the swarm hived on the old stand, which secures us nearly all the working force from the parent colony. The sections are now taken from the old colony and carried to the new hive. In this new hive are placed only six Gallup frames, and the rest of the hive filled up with dummies so as to contract the size of the hive to the real wants of the queen at this time. The work done by a swarm thus treated for the next ten days is almost marvelous, being far more than can be secured by any other plan which I know of. These six frames give plenty of bees for winter, and, often, enough honey. If not, they must be fed, of course. The old colony will build up in good shape for winter, and often give many combs of honey for extracting or giving to those which have been contracted as above. As full sections are taken out of the middle of those on the hive, the others on the outside are drawn to the middle, and more empty ones placed at the sides, and so on to the end of the season. This getting the bees in the right condition for the harvest may be called by some, "Doolittle's hobby." If so, 'tis well, for I believe it one of the best hobbies ever ridden upon by any one producing comb honey.

G. M. DOOLITTLE.

Borodino, N. Y., Nov. 5, 1889.

MANUM IN THE APIARY WITH HIS MEN.

ESTIMATING STORES PREPARATORY TO FEEDING.

SEPT. 15.—"Well, Scott, we have now got the honey all off to market, and every colony supplied with a queen, so far as we know; and now we will commence to prepare the bees for feeding, and we will take the furthest yard first, while the roads are good, as you and I are alone now to do this work, except what little Fred may have time to help us after he gets the farmwork done.

"Jennie, you may put up dinners for two; and you, Scott, may be harnessing up old Bill while I hunt up the veils and wristers, as we may need them. I always like to have them with me in case they are needed, as the bees are liable to be cross at this season of the year. How nice it would be for us if they were getting a little honey—just enough to keep them even good-natured.

"There, here we are, ready for work. We had better put on these wristers, in order to keep the bees from crawling up our sleeves, as they will surely do without them. They are cheap-looking things, but they answer every purpose. They are made of cotton stocking-legs, with a rubber cord hemmed in the lower (or ankle) end of the leg. These are drawn over the coat-sleeves thus. There, you see the cord hugs tight to the wrist, preventing the bees from getting under them, making it much more comfortable in handling bees when they are cross. I will try to work without a veil, as I dislike so much to wear one, on account of my eyes; but you had better put yours on.

"I will now look over two or three colonies, and estimate the honey, and arrange them as I want

them while you look on, then you can go by yourself.

"There, now I remove the cover—or honey-board—very carefully, so as not to excite the bees any more than I can help. You observe that the combs are not all covered with bees. As it is a little cool this morning, the bees are clustered quite well. Now I think I can remove two combs from this hive, leaving ten, which will be all that should remain in this hive. I will place the two combs in this carrying box, to keep them away from the bees; and when the box is full I carry it to the honey-house and empty it, as great care must be taken at this season of the year not to expose any honey or even empty combs, as it takes but very little to set the bees to robbing.

"There, now, we have the space of the two combs to work in, and I will show you how I estimate their stores. I take out the combs one by one, and reckon up the amount in each comb, thus: First comb. This has honey on only one side, occupying about half the surface. If the other side were as well filled it would contain about two pounds; but as it is, I call it one pound. I now place this on this side of the brood-box, in order to keep the vacant place open, made by the removal of the two first combs. The second comb, as you see, has about two pounds and some pollen. We have now three pounds, third comb, some brood, and two pounds of honey, making five pounds. The next three combs, some brood, and so little honey I do not count it in. The sixth comb has pollen and two pounds of honey, making seven pounds. The next comb has three pounds, making ten pounds, and the next two have about three pounds each, making sixteen pounds, and the last comb you see is well filled on both sides, and contains probably four and one-half pounds; but I figure it at only four pounds. We therefore find that this colony has at least twenty pounds of honey, so I mark on this record-board (kept in each hive), "Twenty pounds." Now, when we come to feed this colony we will give them ten pounds of syrup, making thirty pounds for their winter stores, as that is the amount I want each colony to have. I now place the combs back to the further side of the brood-chamber, and put in a division-board next to the combs. There, now you see they have much closer quarters than they had before. I now replace the honey-board.

"I will now mark in this book, which I carry in my pocket, ten pounds, under the head of 'yard No. 6, short,' so that, when we get through, we may know just how much we shall have to feed this yard. Now, this second colony has less bees, so we will remove three combs, leaving nine; and as you see they have only eighteen pounds of honey, we shall have to feed this one twelve pounds of sugar.

"This third colony is strong in bees, but the honey is pretty well divided in all the combs. I will remove but one comb, as that will give space enough to spread the other combs apart all that will be necessary. There, you see I make these eleven combs occupy the same space that the twelve did."

Scott asks:

"I have noticed, Mr. Manum, that you spread the combs further apart than they were. Why do you do that?"

"Yes, Scott. I do that for the purpose of giving the bees more space between each comb, to cluster in. I believe they will keep warmer, and consume less honey, by giving them a chance to form a

larger cluster between the combs. I may not be correct in this, but it seems to me that it is better for the bees."

"Here, Mr. Manum, is a light colony. There are only four spaces filled with bees. What shall I do with it?"

"Wait a moment, Scott, until I get through with this one, and I will show you. Sure enough, they are light, and that is not all. They have no honey. Why! they have been robbed, so I will remove all but five combs, and unite with them two of those nuclei we brought with us. There, set in the combs from the nuclei, with the bees adhering to them. Now they have plenty of bees, and twelve pounds of honey, so we shall have to feed this colony eighteen pounds. They may quarrel a little, but I hardly think they will very much after this dose of peppermint-water.

"There, Scott, we have them all looked over; and I find, by figuring up, that we shall need to feed 1450 pounds of syrup, which means about 850 pounds of dry sugar."

Scott asks, on the way home:

"How do you prepare your sugar for feeding?"

"Well, in the first place I buy the fine granulated sugar. I prefer the fine to the coarse, because it dissolves so much quicker; and as it costs no more, and is just as pure, I prefer it to the other. I have used coffee A sugar, which I think is just as good for the bees; but as there is no saving in dollars and cents by using it, and as it is so liable to harden in the barrels, making it sometimes very difficult to dig it out, I have of late years used granulated altogether. Now, in making the syrup I proceed as follows: To 35 pounds of sugar I use 14 of hot water, 1 ounce cider vinegar, and 1 teaspoonful of salt. I put the sugar into a large tin can, then add the vinegar and salt, and then pour on the water and stir until the sugar is all dissolved. Then the syrup is poured into tin cans, with tight-fitting covers, and it is carried to the different apiaries and fed to the bees, though to the furthest yards the dry sugar only is taken and prepared and fed out there. I feed each colony from 5 to 10 pounds at a time, just at night, when it is warm and pleasant; but when the weather is lowery, so the bees do not fly much, we are able to rush the feed to them all day. Hence I prefer warm lowery weather for quick work.

"This year we shall have but very little feeding to do, as there is nearly honey enough in all the other apiaries to winter the bees by dividing it among them, as some of the colonies have more than they need."

Scott asks:

"What do you use for feeding the syrup to the bees? You do not pour it into the feeders with a dipper, do you?"

"Oh, no! I use a common tin tea-kettle—the largest I can find. I have had tin pots made for the purpose, but nothing suits me better than a large tea-kettle. With one of these I can feed 100 colonies 1000 pounds of syrup in two hours, and make out the records to each hive.

"Well, here we are home again. As there is a little time before dark, you may prepare a few nuclei to take with us to-morrow, as we may find now and then a colony that will need a queen or more bees."

NOVEMBER 1.

"Well, Fred, we are left alone now to pack the

bees for winter, and we had better go right at it and have it done. We will pack the home yard today. I will carry out the sheets for covering the frames, while you carry out the cushions. There, I will show you how to fix one hive, then you can take the next row.

"First, remove the brood-box cover and shove it under the hive to keep it dry. Now take this cotton-cloth sheet and spread it over the frames (no bridge sticks across the frames, as my frames are so small the bees can go around them); now take this enameled cloth and spread that over the cotton cloth, black side down, in such a manner as to cover half of the brood-chamber—the back half—thus leaving the front half covered only, with the cotton sheet, which leaves a chance for upward ventilation, and for the moisture to pass up into the cushion. I now put on the cushion over all; and as the cushion is large enough to completely fill the outer case, there seems to be but little chance for the cold to get to the bees.

"Now put in the entrance slide, which cuts the entrance down to 2 inches long by $\frac{3}{4}$ wide. Now we will drive these stakes in the ground, one on each side of the hive, and tie this twine, one end to each stake, after passing it over the hive; this will prevent the hive from being blown over. There, now, this hive is all fixed for winter, and is to be let alone until spring, unless there should come a warm spell so the bees can fly. If so, we will simply pull the entrance-slide to see that the entrance is not clogged, and the slide is returned at once. This is just the right kind of weather for this work, as it is cool enough so the bees are nicely clustered below the top-bars, and yet not so cold as to make it uncomfortable to work bare-handed." A. E. MANUM.

Bristol, Vt.

Friend M., I never before heard of salting winter food for bees; but as we have plenty of demonstration that the bees like salt, I think very likely it will do them good. Our friend Betsinger claims that it will keep away foul brood. I wish it were true. We should infer that you have tremendous winds in your locality. May be it is the hives that stand on the hill that require to have the covers staked down; and, by the way, do you winter outdoors? One might infer so from the fact that you give each colony 30 pounds of sealed stores. My experience has been, with chaff hives, that 20 pounds is a great plenty, while those who winter in cellars get it down to 15 or 18.—Our first apiary was made with the intention of having the ground always kept clean between the hives. As soon as weeds made their appearance it was scraped over with a sharp hoe, and then swept clean with a broom. This gave it a very neat and tidy appearance; but it required so much work that we thought we could not stand it. Where an apiary is kept so clean, any thing dropped on the ground looks untidy. Even a discarded queen-cell, trimmings from the grapevines, a bunch of clover or grass used to brush the bees off the combs, or any thing of the sort, must be gathered up and swept away in order to have it look pleasing to the eye; but I confess that the pleasure of working in an apiary that is always kept perfectly clean and neat is worth a good deal, to say the least.

HONEY FROM ALFALFA.

REPORT FROM NEVADA, OF HONEY RAISED SOLELY
BY IRRIGATION.

WE have with us to-day Mr. W. K. Ball, of Reno, Nevada, who brings us some samples of comb honey, as handsome as any ever produced from white clover; and, allowing A. I. Root to be judge, of as fine a flavor as any honey from white clover. This honey was all gathered from alfalfa fields, kept growing solely by irrigation. As Mr. Ball sits in a chair near myself and the stenographer, I propose to ask him some questions, and have the stenographer take down his answers.

"Mr. Ball, how many colonies of bees have you now?"

"Well, I should say between 200 and 300 stands."

"How many had you to start with in the spring?"

"I started in with 125."

"How much honey have you secured, like the sample you have shown us?"

"I have taken 12,000 lbs. of comb honey."

"And about how much extracted?"

"I extracted between 4000 and 5000 lbs., the past year."

"What was your best yield from a single colony?"

"My best colony gave me about 250 lbs. of comb honey, such as you tested."

"About how many acres of alfalfa are there, say within two miles of your apiary?"

"Well, it is pretty hard to say. It is all alfalfa to the east, and to the west it is mountains and table-lands."

"How many other bee-keepers are there near you, keeping, say, a hundred or more colonies?"

"There are none keeping over a hundred colonies, but quite a large number keep a few bees."

"Are they all doing well?"

"They are all doing well when cared for."

"About when does the first bloom from alfalfa begin?"

"Well, generally about the first of June."

"How long does this first period of bloom last?"

"I should say about a month; but sometimes it hangs on for six weeks before they cut it."

"They cut it while it is in bloom, do they?"

"Yes, when in full bloom."

"After they cut it, the honey-flow is done, is it?"

"It stops for a few days, and then it starts out again. This year it was about a month before we got another honey-flow."

"Do you know whether, when they depend on irrigation solely, alfalfa yields every season if irrigated?"

"Yes, it does. It never fails. Of course, we have grasshoppers occasionally that eat it up for us."

"When does the last crop begin?"

"Sometimes it commences as late as September. This year I think it was a little earlier."

"Well, now, Mr. Ball, there is another

point that comes in here: Do they all cut the alfalfa about the same time?"

"No, not generally, though they did so this year. During the month of July the honey-yield was not large; still, they gathered honey all the time, and they did fairly well."

"Now, then, if a bee-keeper had control of the alfalfa fields, could he manage to have a continuous flow of honey from June or earlier, till—"

"Yes, till the 20th of September. I am going to have that."

"The alfalfa always yields honey, you say?"

"It does, every time."

"Mr. Ball, can you give us any remote idea as to how many acres of alfalfa would be required to keep 100 colonies of bees busy?"

"Well, I don't know. Alfalfa is just a perfect mass of blossoms. It is just as thick as any thing can be; but I have no idea of how many acres would be required for any given number of colonies. We have but few bees, and they can't begin to gather what there is. I am pretty sure there is enough for a thousand colonies of bees."

"Without question, 100 acres of alfalfa would keep 100 colonies of bees busy, would it not?"

"No doubt about that, at all. I thought that 20 acres would, in full bloom."

"If what you say is true, then it is quite probable that the great field for bee-keepers has almost, as yet, been unexplored and undeveloped?"

"Yes, sir; it is."

"How about the expense of irrigation?"

"Well, where they buy water, they buy it of the companies, and it costs about \$4.00 an acre to water the land, and each acre yields from five to seven tons, but sometimes only three."

"What is land worth per acre, suitable for raising alfalfa?"

"Under cultivation?"

"Well, both ways."

"They value land at about \$100 per acre, and the water goes with the land. Uncultivated land without water—well, the idea is, the land is of *no value* without water."

"What could land be bought for without water—say for raising sheep?"

"I don't know. It is very cheap. I have not bought any. Perhaps \$1.25 an acre. Land that is watered is higher."

"After arrangements have been made for getting water on this land that is worth \$1.25 per acre, how much expense is required to get in a crop of alfalfa—that is, how much per acre for the first crop?"

"About \$4.00 clearing the ground of sage brush, or not more than \$10.00, seeding and all, on good ground. The first ditch is very expensive."

"What is done with such immense quantities of hay?"

"Oh! it is fed to cattle, there in the valley."

"How often is the land irrigated in a year, for alfalfa?"

"Well, that depends a good deal on the

land itself. Some land is irrigated only twice for a crop of hay, and some more."

"You have rain in winter, do you not?"

"Last year we did not have enough, and so we ran very short."

"How much water is required per acre?"

"An inch to the acre, right through."

"Mr. Ball, what are we to understand by an inch?"

"An inch is what will run through an inch hole under six inches pressure—that is, a steady run, day and night."

"What is the nature of the soil of these alfalfa fields?"

"Well, alfalfa does best on sandy or gravelly soil. On such soil it runs its roots down 80 feet along the river-banks."

"Mr. Ball, I heard it said in California, Arizona, and other places on the desert, that any of the desert land would raise nice alfalfa, provided they could have plenty of water."

"That is true—there is no discount on that. Alfalfa will grow any place where there is water."

"Then Horace Greeley's wild vision, as some have termed it, of reclaiming the Great American Desert, needs only water to bring it about."

"That's a fact."

"How much winter do you have, where these great alfalfa fields are?"

"Sometimes as low as 10 degrees below zero."

"Why can't we raise alfalfa here?"

"Why, you have too much rain. You see, the idea is, alfalfa will not stand water except for a few days at a time. It kills the head, and then it dies."

"Alfalfa, then, is rather a plant of the desert."

"Yes, it is."

"I had that idea."

"You can kill a whole field of alfalfa by letting water run on it for two weeks steady. We change the water every 24 hours. Four hours a day is plenty."

"How long does it take to irrigate, say an acre of alfalfa, with the water that runs through an inch hole, under a pressure of six inches?"

"You can not irrigate a single acre with a square inch. You need a pretty good stream. You can irrigate ten acres with a ten-inch stream, but you can not irrigate one acre with a one-inch stream. The sun would lick up the small stream by the heat; but a ten-inch stream would keep ten acres going very well."

"It needs, then, ten inches of water to do any thing?"

"Yes, sir."

"How long does it take to irrigate an acre where you have ten inches of water?"

"Ten inches will irrigate one acre in twelve hours."

"What is alfalfa seed worth per pound or bushel with you?"

"When I left, I think it was worth about 10 cts. a pound. It runs about like red clover—say 60 lbs. per bushel. We don't use *bushel* very much. We buy and sell by the pound almost altogether. We use no water

in the winter. We shut it off in the fall, when cold weather comes."

"How soon do they commence irrigating in the spring?"

"When they get the ditches cleaned, and put on the water in the spring—say about the middle of April."

"How much seed per acre is required?"

"Well, I think about 20 lbs. Sometimes a little more or a little less would do."

"In raising seed, you have to let alfalfa ripen, do you not?"

"Yes. You can get two crops of seed in one season."

"How far apart are the furrows, for irrigation?"

"About three feet."

"About how deep?"

"Well, three or four inches—just enough to keep the water in the furrow."

"How do you make furrows after the first crop is cut?"

"They furrow about once a year. The more you harrow it over and dig around it, the better it grows. A good many harrow it every spring. It makes it grow better."

"Is this alfalfa ground level, or nearly so, or is it on a hillside?"

"Both. They can irrigate it on hillside just as well as on the level ground."

"How do you know when there is water enough?"

"As soon as it runs over the ground, there is water enough."

In addition to the above, I would say that Mr. Ball has pretty nearly a *carload* of this beautiful alfalfa honey. Ernest has just tasted it, and agrees with me that it is equal to any honey in the world. Mr. Ball proposes to use about half a carload of supplies during 1890, himself, and he may be able to make up a whole carload among his neighbors. So you see these great alfalfa fields are going to open a big industry in this matter of supplies. Now, we are not all selfish in our enthusiasm in this matter. There is a great opening for energetic supply-dealers right *on the spot*. It is poor policy to ship lumber thousands of miles, and over mountains, if it can be avoided. The resources of all these new fields should be well looked up and developed.

THE WIDTH AND THICKNESS OF TOP-BARS.

THEIR RELATION AS AFFECTING THE BUILDING OR THE PREVENTION OF BUILDING BURR-COMBS.

WITHIN the last few months there has been considerable said about the prevention of burr-combs above and between top-bars by means of having the top-bars of unusual thickness up and down. The first that I remember of hearing of any thing of the kind was at the national convention at Toronto, when that bright Canuck, J. B. Hall, of Woodstock, Ontario, showed me his top-bars, which were, if I remember rightly, one inch square. I did not feel particularly interested in the matter at the time, because I had on hand a large number of frames, and I would not change any thing of the kind without very strong reasons. Besides, I had no trouble with burr-combs, for I used the Heddon slat honey-

board, which kept the bottoms of sections placed over the brood-frames entirely clean. I have always valued highly this slat honey-board; but within the past three years it has gradually failed to be effective, and the present year I have had bad work with combs and honey filled in between the slat honey-board and the bottoms of the sections. In former years every section was entirely clean from burr-combs. Why the difference? The only explanation I can think of is this: In former years, before putting on the honey-board I scraped off clean the tops of all the brood-frames, and cleaned off the honey-board at the close of the honey-harvest. Latterly I said the bees would only have extra work to fill again these spaces, so I left all the burr-combs on. You may be sure I shall clean them off next year. So if you use the honey-board, profit by my experience, and, before putting it on next summer, make a thorough job of cleaning off all propolis and wax above the upper surface of the top-bars. Perhaps I may do well to tell you how I have done it.

I take a common garden-hoe; and while an assistant blows over the top-bars just enough smoke to keep the bees down out of the way, I hoe off every thing, leaving the top-bars clean. The hoe also makes rapid work in cleaning off the honey-boards. Lay them down inside a shallow box, or in some way so they are held firm; and after you have hoed them off, clean out the spaces between the slats by means of a flat garden-trowel, which may be used, indeed, for the whole of the cleaning. If the honey-boards are cleaned off immediately upon taking from the hives, you will have a sticky mess, and may have trouble with robbers. To avoid this, loosen up each honey-board a day or a week before taking off. Pry it up at different points, so that you are sure you have broken loose all attachments, and then leave it closed up as before, and in 24 hours no honey will be found on the honey-board.

But, to come back to my starting-point. I am quite anxious to know whether thick top-bars will allow me to dispense with honey-boards entirely; for notwithstanding the high value I have set upon them, there is no denying the fact that they are decidedly in the way when you want to lift out frames; and from my experience I think they must be taken off and cleaned at least once a year, which is no little trouble. I think the editor made the objection to thick top-bars, that he didn't want to use any unnecessary wood; but, pray, isn't there any extra wood in the honey-boards? Besides, thick top-bars are less expensive and more substantial, and surely there is less machinery about them. I should really like to know why a honey-board prevents the building of brace-combs. Some claim that it is the break-joint principle. This year I have given considerable attention to this point; have had many cases in which there was no break-joint, but the space between the top-bars corresponded with the spaces of the honey-board, and I could not see that the break-joint was any better than the continuous passage. I wonder if it is not the simple matter of distance that prevents the bees from starting brace-combs. In my hives, the top-bars are $\frac{3}{4}$ thick, then a space of $\frac{1}{8}$ between top-bar and honey-board, and another $\frac{3}{8}$ space between honey-board and the bottom of the section. Now, this upper space is so far from the brood-comb that the bees may not care to fill up so small a space;

but after the space between the top-bar and honey-board is all filled up with comb and honey, the bees may next turn their attention to filling up the upper space, which is now only one-third as far above filled comb as it was at first. Now, if the matter of distance be all that is needed to prevent building, then the thicker top-bar may better be used than the honey-board, with no danger of its becoming inoperative. If any have tried the thick top-bar, and found it a failure, I should like to see it reported.

WIDTH OF TOP-BARS.

My top-bars are one inch wide; and if I should make any change in thickness, I might also change the width, if $\frac{3}{4}$ be a better width. I should like to know just in what way $\frac{3}{4}$ is better than one inch. I am a little afraid that, in hauling without fastening, the narrow top-bars might not hold so securely in place.

C. C. MILLER.

Marengo, Ill.

P. S.—Since writing the above, I heard Heddon and Hutchinson say they never clean off their top-bars, and yet have no trouble. That leaves me all at sea again.

There, friend Miller, you have brought up a subject that I have been thinking of for some time. I had intended to experiment with thick top-bars, but somehow I did not "get round to it." Mr. Danzenbaker, of Washington, D. C., when at Medina a year or so ago, said he had used these thick top-bars in his hives very extensively, and that they did prevent brace-combs. Now, if Mr. Hall and Mr. Danzenbaker, and others who have testified to the value of these thick top-bars, are correct, I do not see but that the honey-board will have to take a back seat—at least the plain slatted board, for I should a good deal rather have the extra wood in the top-bar, than in some extra contrivance. Will Mr. Hall, or Mr. Danzenbaker either, please let us know whether the thick bar *still* does away with the building of brace-combs, partially or entirely? We have always, at the Home of the Honey-bees, been in the habit of scraping the honey-board and the brood-frames before putting on the honey-board. For this purpose we have used a common garden-trowel, both sides of which had been ground to a sharp cutting edge. The hollow of the trowel holds the scrapings for one whole hive; and during the operation of scraping, no bits of comb drop in between the frames. With your hoe you can doubtless do it much more rapidly. You speak about the *width* of top-bars. For the past two or three seasons we have been using a hive with top-bars $1\frac{1}{4}$ inches wide, but only $\frac{1}{4}$ inch thick. Quite accidentally this season we noticed that few or no brace-combs were built above these top-bars. Had it not been for the fact that two or three correspondents had reported a similar observation, I should have thought no more about it than that it was the peculiar condition of the colony. Now, while I do not propose to advocate or even intimate that a *wide* top-bar would be advisable, I should like to hear from those who have had opportunities for experimenting in this matter. I know the general verdict is most strenuously in favor of a top-bar $\frac{1}{2}$ inch wide. This being the width of the average brood-combs, and also being a very convenient thickness

of lumber, has had a good deal to do in deciding on the width. Practical articles on this matter would be very acceptable just now. We should also like to hear from others, whether brace-combs are sometimes built through the honey-board, as Dr. Miller explains, and whether such building through is frequent, or only of rare occurrence. In regard to the break-joint feature, I never could see that such arrangement of the slats made any appreciable difference one way or the other, and I have watched the thing in our apiary quite closely. There were, so far as I could observe, just as many brace-combs when the slats were break-joint as when they were not. ERNEST.

In addition to what Ernest has said, I would say that I well remember friend Hall's thick top-bars. I think it was the first intimation that ever came to my knowledge, that having the top-bars very thick would answer the same purpose as the honey-board in discouraging the building of bridge-combs up against the sections. I told him, and I can not help thinking now, that getting the bees so far away from the brood would not only discourage bridge-combs, but it would discourage them from going into the supers. There has been a great deal of complaint already, that full-blooded Italians are slow to commence in the boxes. Now, is it not true, that, the further we get surplus sections from the center of the brood-nest, the more we increase this difficulty?

J. M. JENKINS.

A SKETCH BY A FRIEND.

J. M. JENKINS, of Wetumpka, Ala., is a native of that State, and was born Jan. 17, 1856. His early boyhood was attended with many incidents of an interesting character, which, for lack of space, we must allow the reader to learn of by cultivating a more intimate acquaintance with him. When he was but fifteen years old his father was killed by the explosion of a boiler in the sawmill of which he was part owner; and, as is frequently the case with the widowed and the fatherless, the settling-up of affairs was so managed in the interests of others as to deprive them of their rightful share in the property, and they were left with but small means at their command for support.

The family now consisted of the mother, the son, and two younger sisters. With more keen perception of duty than is usually found in a boy of his age, Master Jenkins realized that the cares and responsibilities of becoming the *man* of the family practically devolved upon him.

At this time of life he was slight of build, and rather delicate in health; but he bravely put forth his best efforts to fill the place so sadly made vacant. The family were living upon a farm at the time, and, naturally, the efforts of our young friend were first turned in this direction; but his good will and purpose far exceeded his physical ability, and farming was not a success. The mother, in her faithful love for her children, and purpose to keep the little band together, finally decided to move to Birmingham, Ala., with a view to bettering their condition. From early childhood

the boy had manifested a great love for machinery, and it was his ambition to learn a machinist's trade, and to eventually become an engineer. Having a fixed purpose in view, he sought a position in this line; but being a stranger, and without influence, he was unsuccessful in his efforts to find an opening. At last a chance acquaintance, learning of the boy's eager desire for employment, offered him a job in the round-house of the Louisville & Nashville R. R., at Birmingham, as a wiper. For the benefit of our young readers, especially the boys, I will explain that the duties of this position required him to wipe off the grease and dirt from the locomotives as they came in off the road; draw the fires, fill the sand-boxes, shovel the tenders full of coal, load on wood, turn the engines on the turntables, and fire them up for the outgoing trips. Now, this was all hard, dirty work, and I fear that some of our boys would shrink before such a task. But our young friend was resolute in his purpose;



J. M. JENKINS.

and as this opening was in line with his ambition to become an engineer, he gladly accepted the position at \$1.25 per day. Considering his age (seventeen) and his slight build, it is a marvel that he ever endured the work; but his true pluck manifested itself to such a degree that the company, recognizing his worth, offered him a position as fireman on a locomotive, at the expiration of five months' service in the round-house. Many predicted certain failure for him here, on account of the arduous duties; but again he was victor of the situation. Wholly upon his own merits he rapidly arose in the estimation of the company, and, having become thoroughly competent to run an engine, at the age of twenty we find him running a switch-engine. In 1878 (now twenty-two years old) he was put upon the road as a full-fledged engineer. As an evidence of the high esteem in which he was held by his company, two years later he was tendered the

branch road which runs between Wetumpka and Elmore, in preference to many older engineers who had been longer in the service of the company. This is considered the most desirable run that the road now offers, and for nine years past Mr. Jenkins has enjoyed the advantages which this position offers.

In 1879 he was happily married to Miss A. E. Angell, of Tennessee, and the partnership proved to be a rich blessing to him. Added to the charm of quiet, pleasing manners, Miss Angell brought with her into the home life the sweet grace of a pure Christian heart, and it was through her influence that our friend and brother was led to a realizing sense of his obligation to the Father of all mercies and blessings; and from a life of thoughtless indifference to such matters he was won over into the pure light of the gospel, and the household was established with a prayer for divine guidance and blessing, and the family altar is now a feature of the home. Through the same loving influence he was induced to give up the habit of smoking, and, to use his own words, he now thanks God daily for his goodness to him in sending him such a wife. Their marriage has been blessed with four lovely children—two boys and two girls, and the sunshine of love and happiness sheds its radiance over the family circle.

About seven years ago Mr. Jenkins became interested in our favorite subject, the bees, and studied it with an earnestness which bespoke a mastery of the art. He afterward became desirous of engaging in the supply-business, and made a proposition to Uncle Amos to establish a branch of the "Home of the Honey-Bees" in the South. Mr. Root did not seem to favor the plan in just that form, on account of freights, etc., and, with characteristic tenacity of purpose, Mr. Jenkins determined upon starting out on his own responsibility.

Purchasing an engine and suitable machinery he started a factory, and in 1886 issued his first catalogue; and our friends all through the South have been greeted each year since with as bright and neat a publication of this character as may be found. From a small beginning our brother has advanced until now his business represents an investment of from two to four thousand dollars.

His business standing is one of unquestionable integrity, and is considered good for all obligations which he incurs; and his constant aim is to so deal with his fellow-men as to merit their highest regard.

In stature, Mr. Jenkins is tall. His physical power and endurance are in keeping with his well-rounded character, and his features forcibly express the determination and grit which have marked his career thus far. He enjoys almost perfect health, and I am sure that the brotherhood will join with me in wishing him a continuance of that blessing, and success in all his undertakings.

J. FRANK PARKER.

Philadelphia, Pa., Oct. 21, 1899.

Friend P., there is something you have not touched upon, that I want to say about our friend Jenkins. When he was working for the railroad company he attended to his duties so well that he had considerable spare time from each day on his hands. When he wrote us about going into the supply business I asked him what his employers would say in regard to it. I was afraid

he intended to work this other industry in on the sly—that is, receive pay for working for them while he was really working a good part of the time for himself. Of course, I did not then know what kind of stuff he was made of. He replied at once that he had stated the whole matter to his employers, and they not only acquiesced but had promised to help him by giving him unusually low rates of freight to get his supplies. Later, when I saw some letters from the railroad men, proposing several times to give him even *more* than he had ventured to ask them, it taught me a good lesson; viz., that even great railroad companies have souls; and that, when they get hold of a young man who is open, honest, and square, without the least trace of a disposition in his heart to do things on the sly, they delight in honoring such a one, and showing him how much they trust him. All through our business deal with him I have been surprised and pleased to see that the railroad companies everywhere seemed to feel a pleasure in assisting him. My friend, are you sure that you have never been guilty of trying to keep back, evade, or elude the keen eyes of our railway corporations, say just a little bit? I am afraid that I have at times been guilty myself in just this line. Now, let us take a lesson from the experience of friend Jenkins. He is not a moneyed man, and never was; but he has another kind of riches that the great wide world has discovered, and that frank, manly, open face shows it. He loves his Savior, and he loves to be truthful.

APICULTURAL NOMENCLATURE.

CLAMPS OR CRATES; HONEY-BOARDS OR RACKS.

NOTICE two errors in Oct. 15th GLEANINGS, page 808, directly under the picture. You make me say, "So that the clamps for shipping-crates just fit." It should read, "*or* shipping-crates." Also 11th line below the picture, you make me say "*blankets*," when it should read *blocking*.

Now a word about crates and clamps, etc., noticed in your foot-notes. I believe I am correct when I call the *section-holder* a "clamp," for it is a clamp, as the sections are clamped in it, in all "clamps"—mine with a screw, others with wedges, and some with springs; hence a clamp is what we use to hold the sections in while on the hive, or, in other words, a clamp is used for holding a certain number of sections in and about the apiary, while a crate or case is used only for marketing honey. They are not used as a "clamp" about the apiary; so then we have "clamps" for use in the apiary, and "crates" for shipping and marketing honey only.

Again, we have *honey-boards* for covering the brood-chamber. We also have the Heddon break-joint *honey-rack*, not *honey-board*, for it is not a board; it is a rack, made of cleats—or slats.

We also have the perforated zinc queen-excluders. They are not "boards," but perforated sheets of zinc; hence they should be called zinc excluders. We also have the wood-zinc excluders, which are not *boards*, but wood-zinc excluders.

I suppose, properly speaking, we do not now use "honey-boards." I suppose formerly a honey-

board meant a perforated board placed over the brood-nest, upon which honey-boxes were placed, and the bees passed up through the holes in the honey-board into the boxes; hence the name "honey-board." Therefore what I now call a "honey-board" is really a brood-box cover.

Bristol, Vt., Oct. 28, 1889.

A. E. MANUM.

FAIRS, CONVENTIONS, ETC.

ARE BEE-KEEPERS WORKING AGAINST THEIR OWN INTERESTS WHEN THEY ATTEND THEM?

AT the late Illinois State Fair I had on exhibition extracted honey. I said to my competitor, "What makes the difference in this extracted honey—all white clover?"

He said, "I thought there was some trick about it."

I said, "I agree with Amateur Expert with reference to using white comb for light honey, although I believe A. I. Root differs. That honey there on exhibition was extracted from white comb, a good deal of it being built this year, and I had to use the most exceeding care to prevent its being broken. On very hot days it broke badly; but on cool days it did not. If I came across a patch of honey of different color, it was set aside, and not mixed with the very white. Have I a mistaken idea, or not, that, in order to have very light honey, it must be stored in white comb?"

FAIRS.

I stood by the honey and bee exhibit for three days; shook hands, and gave out sample copies of bee literature; and was I not working against my own interest? To be sure, we had a grand admiration meeting; but these advertising paraphernalia fell into the hands of those who own a few bees, and they may become subscribers, and learn how to produce more honey than they now do, bring it to this market, and undersell me. It appears to me as though bee-keepers who work at fairs are injuring themselves, but benefiting publishers and supply-dealers.

CONVENTIONS.

When I came home from Chicago the "lord of the manor" said, "What new ideas did you get at Chicago—learn any thing that you didn't know before? Keep bees just as well if you never went to a convention."

"Well," I said, "if I didn't learn any thing new, I saw something that I never saw before, and that was wooden comb that the bees had reared brood in for two seasons. Mr. Aspinwall claims that it will prevent swarming, as the bees can not rear drones. I should not think that the ladies would be as happy and contented, and work as well, when there are no gentlemen of leisure around—would you?"

It's funny, isn't it? that those who never attend conventions know so much about them. Now, there is Mrs. Chaddock, who never attended a bee-convention in her life, and how glibly she can tell what we all go for! We have an ax that I must own is very dull, as it is used only to pound up coal; but wouldn't I be very silly to carry it to a bee-convention to have it sharpened?

Mr. Root, you used to throw a wet blanket on conventions back in the seventies, didn't you? And even now, while there is one in session, a lily

that has a leaf as big as a cart-wheel has greater attractions.

There are so many changes in a year, would it not be well to have the international subject to the call of a committee, as to time and place? During the encampment of the G. A. R. I could have gone to Columbus and return for less than five dollars; but when the bee-convention met it cost twenty. I have been considering for the past year whether I had better go to Brantford, Ont. The fare will be nearly forty dollars, besides hotel bill, and honey is cheap, and bees slow of sale. MRS. L. HARRISON.

Peoria, Ill.

My dear friend, I believe that I did, a good many years ago, try to throw wet blankets on conventions, fairs, etc.; and it is equally true that I once tried, in a feeble way, to find fault with churches and Sunday-schools. May God forgive me for both. I suppose it is true, that once in a great while we cut off a little of our income by communicating to the outside world what we have learned in our special fields of industry; but, dear Mrs. H., do you not think the injunction from our Master, "Give, and it shall be given unto you," applies here? I know the question has come up a good many times, during late years. Shall we teach everybody every thing we know, or shall we keep our business, especially the new developments of our industry, to ourselves? The latter would seem to be the more prudent way; but I believe the experience of the world contradicts it. The man who gives most freely, by some strange law of our being gets most freely, as in the language of our text. We have found records of great business men who have given astonishing sums toward civilizing and Christianizing foreign lands. Did they become impoverished? Not so. The beginning of a liberal, broad, generous regard for their fellow-men away off in the distant parts of the earth was the beginning of their prosperity; and I believe, my friend, you will find it true that this habit of going to fairs, and working in a judicious and sensible way for the education of our people, will bring prosperity. Now, I am a little peculiar in this matter. I do not believe in keeping a single thing secret that would be of value to my fellow-men; neither do I believe in duties on foreign products—that is, so far as I have light on this subject. When those great big cabbages came from Holland, and sold at a big price in America, I felt happy because the neighbors in Holland had found a new opening for their produce, and a new encouragement to raise big cabbages. There has been some talk about putting a tax on bananas, and it pains me when I hear it discussed. I do not know what sort of people raise bananas, and I don't care. They are fellow-beings, and the large consumption opening up on them must encourage them in their special industry. I wonder if any of the readers of "GLEANINGS" live where bananas grow. If so, will they tell us something about it? Now, I do not know what bearing this has on politics. I am afraid I do not like politics very much; but I am trying to love my neighbors in Holland, in Jamaica, and, in short, in Europe, Asia,

and Africa, as I love myself. If the strawberries I raise have to be sold low because two great bananas can be bought for a nickel, what is my loss will be their gain; and I hope I feel as happy in feeling that their bananas are moving off rapidly (so they can be busy and happy in raising more)—yes, *happier*, than if I got 15 or 20 cents a quart for my great big strawberries.—Yes, I did go to see those lilies with leaves as big as a small cart-wheel, right during convention time. Mrs. Root has just one brother in this world, and that brother has just one daughter. I have heard more or less about her for twenty years or more, but I never saw her till the first day of the Chicago convention. She was an utter stranger in a strange land—had never seen the great city at all, and had never had a glimpse of Lake Michigan, nor of any other lake, until I went out to Lincoln Park with her. She was to take the evening train home, and so there was almost no way but to take a little time from the convention. I am quite certain that I lost a good deal by being absent; but I do not believe that the rest of you lost very much—especially when you had so many bright stars in the apicultural world who were also good talkers. I know it costs money to go to conventions. It frightens me sometimes to think of it. But let us avoid the other extreme by being penurious. What did God give us goods and money for? First, to glorify his holy name; second, to use for the good of our neighbors and fellow-men.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

RAT-TAILED MAGGOTS.

Mr. H. G. Frame, Manchester, Ind., sends me a large fine two-winged fly which he finds about his hives. He asks me to write it up in GLEANINGS. The only thing of special interest in this insect is, that the larva, or maggot, is not only worm-like, in being without feet, but it is often called the rat-tailed maggot, as there is a long tail-like organ, which carries a spiracle at its end. This maggot lives in filthy water—water containing decaying organic matter—and so finds this tail useful in lifting its one breathing-mouth out of the water, to get pure air. The fly that lays the eggs in this filthy water is a plump, brownish-yellow insect, looking quite like a bee. These flies are generally seen about flowers, where they search for honey and pollen. Of course, their mimicry serves them well; for, as they resemble bees, birds are rarely tempted to catch them. In macerating the bones of animals, when we place them in water in barrels, we often get a large supply of these rat-tailed maggots, and see the flies about, laying their eggs.

Agricultural College, Mich.

A. J. COOK.

QUEEN AND DRONE IN COPULO, AS SEEN BY AN EYE-WITNESS.

In GLEANINGS for Oct. 1, page 774, Prof. Cook desires to know if any one has ever seen the drone and queen fall to the ground in copulo. In June, 1888, I was fortunate enough to witness a case of this kind. I was first attracted by a considerable

noise made by bees in quick motion; and on closer observation I discovered that they were drones. They would drop nearly to the ground, and then rise again, only to again descend. The queen and one drone dropped at my feet, falling to the ground before they became disconnected. After they had become separated, the queen remained on the ground a sufficient length of time for me to pick her up in my hand and examine her closely. She was a very nice Italian, and I could not resist trying the experiment of introducing her to a colony of mine that I wanted to supersede their queen. I did so with entire success, by caging her in over night.

We increased from 4 to 21 colonies this season. We had a fine rain to-day, which is the third this season, something out of the common for California. The hills and valleys are quite green.

The Ignatum seed I got of you last spring is making fine tomatoes. They are very fine-flavored, and contain a great deal of meat. Thanks for the seed.

Los Angeles, Cal., Oct. 20, 1889. J. W. TOWNS.

Thanks for the valuable item you furnish, friend T. It corroborates the statements that have already been made.

SHUTTING THE BEES IN THE HIVES TO KEEP THEM FROM FLYING OUT AND DYING IN THE SUN.

Mr. Henry Leck, a neighbor of mine, is quite a successful bee-keeper. I wish to give you his mode of wintering bees, and ask you and others what you think of it. He uses a telescope hive, with the Gallup frame. He leaves them all winter on the summer stand, without any protection whatever—not even a windbreak; and when it gets cold enough for snow to begin to fly briskly, he stops the entrance with wire cloth, so as to prevent the bees from taking a flight until the cloth is removed in the spring. What do you think of it?

C. L. COOK.

Glen Rock, Neb., Oct. 29, 1889.

Friend C., fastening bees in their hive with wire cloth while they remain on their summer stands might answer in Nebraska, but it surely would not do here. We have days almost every week in the winter time when the bees would crawl around the entrance so as to injure themselves, and perhaps smother the colony. So long as the weather keeps down to the freezing-point, or pretty near it, the wire cloth, without doubt, will do no harm. Perhaps if a two-inch space were provided above the entrance, where the dead bees could fall out of the way, it might work better; but I do not think I would advise fastening bees in their hives when wintered outdoors.

THE APIARIAN EXHIBIT AT THE WORLD'S EXPOSITION FOR 1892.

Friend Root:—Until last Saturday I did not know that you had said anything in GLEANINGS about my taking charge of the apiarian exhibit at the World's Exposition in 1892, and I should not have known it yet had not Prof. Cook written to me, "seconding" what you said in regard to it on page 743. Many thanks for your kindly mention of me, and I'm sure I appreciate your good opinion. I was from home so much at the fairs, etc., that the bee-journals were slighted for several weeks.

I have thought a good deal in regard to the fizzle of the apiarian exhibit from the U. S., at Paris, and had come to the conclusion in my own mind that we *must* make the grandest display, or exhibit, of

the bee industry at the World's Exposition in this country in 1892 (wherever it may be held), that was ever made in the world; and to do this we must begin in time. With that in mind, and thinking that, as president of our national association, I might properly be considered the representative of American bee-keepers, I wrote those in charge of the proposed exposition in Chicago, and also to the mayor of New York, suggesting that, when the proper time arrives for arranging matters, we be given the proper inducements and space to make such an exhibit as will be a credit to us and an honor to the country.

The president of the Chicago organization replied, saying, "The suggestion you make is a good one, and will be laid before the proper authority for such action as may be required, should the fair be located, as we expect, in Chicago."

I have not yet heard from New York, and shall write to Washington as soon as I learn the name of some one engaged in trying to get the exposition located there, so as to be on hand at whichever place it may be located.

I expect to say something about it in the president's annual address at the convention at Brantford. It may, to some, seem a little early to "set the ball rolling;" but if we wait till next year we may be too late; for just as soon as congress settles the matter of location, the plan of the exposition will at once be laid out; and unless we are on hand we shall get left out.

A. B. MASON.

Auburndale, O., Oct. 25, 1889.

THE HONEY MARKET IN SAN DIEGO, CAL.

Our hives are heavy; 1000 swarms of bees were burned up in one place, and several other apiaries burned. This has been a poor honey year—probably about one-third to one-half a good year's return. Honey brings, extracted, 5 to 6 cts.; comb, 6 to 7; in Root's sections, about 1 ct. more.

J. I. FOOT.

San Diego, Cal., Oct. 10, 1889.

Friend F., we are very sorry to hear about the apiaries being burned. During your long drouth I should think there would be great danger of fires. I am astonished to hear that comb honey is down as low as you say. Just one year ago I priced honey in different stores in San Diego, and they wanted about twice what you mention, at retail. Do your dealers pay 6 or 7 cts., and retail for about 15 or 18? I know a good many excuse themselves in San Diego by saying that their rents are so excessive they are obliged to have high prices. Somebody had better run a honey-wagon around San Diego and suburbs.

AUGUST HONEY CANDYING IN OCTOBER; IS CANDIED HONEY IN COMBS FIT FOR A WINTER FOOD?

Friend Root:—Did you ever know of honey, gathered during the last half of August, candying in the sealed combs by the middle of October? This has been my experience this season. At my home apiary I usually take my fall crop of honey all off, and feed my bees for winter before I begin to extract. Great was my amazement, when I began to extract a few days ago, to find the honey in my best combs candied so that I could not throw it out. I reckon that I shall have half a ton of nice buckwheat honey for the bees to peck out of the combs next spring. In an experience of ten years I have never known honey, to candy before I had a chance

to extract it. I suppose the honey left in the hives will be in the same condition. Is candied honey objectionable for winter stores?

Hudson, N. Y., Oct. 21, 1889.

JAS. MCNEILL.

Yes, friend M., we have known honey to candy in just the way you describe. We supposed, however, that it was on account of the weed or plant from which it was gathered. We never knew buckwheat to do such a trick as this. Where honey candies in the comb it is a pretty hard matter to get it out. I would use it for feeding nuclei in the fall, where they are raising queens. They will use it all up, and it is not very apt to start robbing.

PUTTING WEAK COLONIES ON TOP OF STRONG ONES FOR BETTER WINTERING.

I have 46 colonies, some weak, all in square hives except four. I am going to set the weak ones on top of strong ones. I have a hole in the top of the strong hives. I think the heat from strong hives will help keep the weak ones warm. What do you think of the idea?

S. S. BUCKMASTER.

Moulton, Ia., Oct. 10, 1889.

Friend B., you do not say whether you propose putting bees in the cellar, or leaving them outdoors. In the former case there is no question but that it would be an advantage to the weak one. If outdoors, however, I do not think it would amount to very much unless you had a very large opening in the top of the strong colony, and this opening covered with wire cloth.

UNFINISHED SECTIONS BUILT OVER, JUST AS GOOD.

I began the season with 100 swarms, and now have 158. I have taken 3600 pounds of comb honey, and 700 extracted. The extracted all came from unfinished sections. I always extract all the unfinished sections, and put them away for spring use. I can not see but that they look just as nice as those made from new foundation. I use full sheets of foundation in the sections, and also in the brood-frames. I use the wire-imbedder, and a small tool for fastening the foundation to the top-bar, made by John Vandervort. I think the wire-imbedder a great deal better than the one advertised in your price list. I have used the Vandervort foundation-mill for about seven years, making all my own foundation, and supplying a number of other bee-keepers in this county. It has been a rather poor honey season for this section, being cold and wet most of the time.

S. A. BRIGHAM.

East Smithfield, Pa., Oct. 27, 1889.

We are glad to know that you have succeeded with sections of the year previous, friend B.; but we want to know more about that wire-imbedder that you say is ahead of ours. Can't you send us one by mail? We will pay you for all your trouble.

HOW TO REMOVE PROPOLIS FROM RUBBER GLOVES.

Some one wishes to know what will take propolis off from rubber gloves. Now, I do not use gloves of any kind, but have found by experience that a soap widely advertised as sapollo will dissolve and remove propolis from the hands, rubber belting, and any thing else that it happens to come in contact with. It will not injure the most delicate fabrics, or the skin either. I may say, in passing, that I am not interested in the sale of soap in any way.

Musson, La., Oct. 21, 1889.

DR. A. W. TUFTS.

THE BEE-BUSINESS BOTH PLEASANT AND PROFIT- ABLE.

Inclosed please find a check for \$1.00, in payment for GLEANINGS, which has been worth more than five times that amount during the past season. The timely hints were at once put into practical use, and proved of great value. I have been five years in the bee-business, and have now 68 colonies. I received about 1400 lbs. of white honey, from 47 colonies, spring count. I use the chaff and Simplicity hives, with T supers. I find the business both pleasant and profitable.

W. S. GARDNER.

Brown Hollow, Pa., Oct. 21, 1889.

A CORRECTION.

GLEANINGS for Nov. 1, containing my article on "Aphidæ," is just at hand. In the second paragraph I notice that one statement I did not make as I intended. What I wished and intended to say was this: "I always had the idea that they (insects) all come from eggs deposited in or on some substance, until within the last year or two, when my own personal observation forced me to come to the conclusion that there must be some exceptions to the rule." The italicized words were left out of the article in question. In Prof. Cook's article on flies I had understood him to imply the same idea.

Ipava, Ill., Nov. 5, 1889.

ANNA B. QUILLIN.

JAPANESE AND SILVERHULL BUCKWHEAT SIDE BY SIDE IN THE SAME FIELD; THE JAPANESE 100 PER CENT BETTER.

The peck of buckwheat you sent me did well. I got eight bushels from it. I sowed it the 10th of June; and I think if I had sown it a little later it would have done better. I sowed, the same day I sowed it, some silverhull buckwheat by the side of it. The Japanese was much better than a hundred per cent better. I would not sow the silverhull if a man would give it to me, and give me the ground to sow it on besides.

J. P. MEYERS.

Fort Dodge, Ia., Oct. 20, 1889.

40 BUSHELS OF JAPANESE BUCKWHEAT FROM 1/2 BUSHEL OF SEED.

Seeing the report of Mr. C. J. Schafer, of Eddyville, Ia., on Japanese buckwheat, I decided to send in mine. I sowed of seed, got from you last spring, a half-bushel on one acre of ground, and had just 40 bushels. My mode of cultivation was as follows: The ground was in corn last season; was plowed about the 20th of June, and thoroughly harrowed. On the 5th of July it was harrowed well, and 200 lbs. of dissolved bone drilled, then on the 9th of July the buckwheat was sown broadcast and harrowed twice with spring-tooth harrow. It was cut with a reaper 10 weeks from the day it was sown. If it had not been so dry just when it was making the grain thick it would have been much better.

LOUIS STEPHENS.

Fayette City, Pa., Oct. 24, 1889.

Friend S., our experience about here is, that it pays exceedingly well to drill in either bone or phosphate, at the rate of about 200 lbs. to the acre. Sometimes the phosphate makes all the difference between a good crop and no crop at all.

BEE-STINGS A CURE FOR RHEUMATISM; VALUABLE AND POSITIVE TESTIMONY.

It may interest you to hear my experience with bee-stings as a remedy for rheumatism. Ever since the war I have been a confirmed sufferer with this dread complaint. I have been treated by Dr. Ham-

mond, of this city, and Dr. Agnew, of Philadelphia, besides other doctors of less reputation, and in no case did I derive any permanent relief. I tried Blair's gout pills, and for awhile I controlled the disease with these; but finally they lost their grip, and I got so bad that I lay in bed for weeks, suffering such torturing pain that my wife was obliged to prop the bed-clothes so they would not touch me; and Dr. Cassaart had to be called in night after night to give me hypodermic injections of morphine. Finally my attention was called to newspaper articles about the first of last January, and I made up my mind to try the bee-sting remedy. I consulted with Dr. Cassaart, and he secured 25 bees. He grasped one after the other with a pair of tweezers, and let one bee after another sting me where the inflammation and pain were the greatest, until I was stung 18 times. He stopped then, because the pain had shifted from my left foot to my right knee. The doctor decided then to stop and await results. This was about 11 o'clock in the forenoon. When he called, about 5 o'clock in the afternoon, the pain had actually subsided, and by next morning I was up and around, *cured entirely*. I could walk, and stamp my foot as hard as I liked, and I have not had a single twinge of rheumatism since; therefore I consider bee-venom a specific for rheumatism.

JOHN MAGRUDER.

Washington, D. C., Oct. 25, 1889.

Friend M., you give us the most astounding testimonial that has ever been received. Had not so long a time elapsed since the cure. I should be inclined to think it might be only temporary. The account reads some like a patent-medicine testimonial; and I hope you will excuse me for being uncharitable enough to fear that you were going to wind up with something to sell—perhaps bee-venom put up in bottles. It is not very likely, however, that this remedy will need to be administered in that way. Scarcely a locality can be found where there are not more or less bee-keepers; and any bee-keeper could give you 25 bees at any season of the year, without very much expense. Will other friends who are suffering from rheumatism test the matter and report? It seems to me that your doctor should take pains to have the result of this experiment widely disseminated through the medical journals. It may be a little offset to the talk there is in some localities about bee-keepers being a nuisance.

BEE-STINGS SEEMINGLY NOT A CURE FOR RHEUM- ATISM.

I am not in the habit of writing for publication, neither do I think myself capable; but as you ask for facts regarding bee-stings curing rheumatism, I will say I have had some experience in the matter, as I have been afflicted with that disease ever since the late war. In fact, I got it there. About 12 years ago I got my first swarm of bees; and, as you know, beginners usually get stings enough. Some time after, I began reading bee-literature more or less; and among other things, plenty of stings, it was said, would cure my disease, but time wore on. My rheumatism didn't hurt so bad, and I began to think I was cured; but, alas! I am to-day as bad as I ever was, and I believe worse. So I would say to all afflicted in that way, don't harbor such a vain delusion, for it is nothing less. As I said, I have had it since the late war, or for nearly the last 25

years, and am now 55 years of age, and expect to have to suffer as long as in this tabernacle.

Dugger, Ind., Oct. 23, 1889.

J. LAMMEY.

Why, friend L., if the stings were not a cure, you admit that it did not hurt so bad; and if the bee-stings were only an alleviation temporarily, I think that is something to be thankful for. Your case was a very aggravated one, if I understand you correctly.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 148.—*a. If your colonies had their combs well filled and capped over with honey-dew, and you had no other combs to give them, would you, if sugar were high, extract it and feed granulated-sugar syrup? In other words, would you prefer to run the risk of their not wintering on honey-dew, rather than to go to the expense of extracting? b. If well-ripened buckwheat were substituted in place of the honey-dew, as in a, what would be your procedure?*

I never had any honey-dew till this year. I have concluded to let the bees take their chances in wintering on it, rather than go through the labor of extracting and feeding.

G. M. DOOLITTLE.

Under these rare conditions I would extract and feed something better. Bees winter well on good buckwheat honey and it could be fed instead of sugar. There is much called honey-dew that is something else.

P. H. ELWOOD.

Here in the South, bees winter on any kind of sweets they gather; but as honey-dew is detrimental to safe wintering in the North, it will pay better to extract it and feed granulated-sugar syrup than to run the risk of losing the bees.

P. L. VIALON.

a. I would extract, at least from the majority of my colonies. I might "chance" a few hives on honey-dew. b. Let them alone. Well-ripened buckwheat honey is good winter food for bees or men.

MRS. L. HARRISON.

I should trust the honey-dew to winter on if well ripened. *b. I would not disturb the buckwheat honey, if well ripened. It is of great importance that any honey can be well ripened for winter stores.*

H. R. BOARDMAN.

a. I would take my chances on their own stores killing them, rather than to extract, especially here, where full hives of bees can be bought for \$3.00 each, in hives worth \$1.25, and when sugar, as now, is worth 10 cts. per lb.

R. WILKIN.

I have run the risk successfully, many times, of having honey-dew or buckwheat honey for winter stores, and I will do it again every time. It is the damp above that kills your bees, but not the honey-dew nor buckwheat honey, nor the bee-bread.

C. F. MUTH.

a. Yes, I would. So far as I know about honey-dew, it is not safe, though my experience with it is very limited. Granulated sugar I know is safe, and a sure thing is always the best for me. b. I would have it, as I have wintered bees successfully on buckwheat honey alone.

A. E. MANUM.

a. We prefer to go to the expense of feeding sugar syrup, rather than to run the almost certain risk of losing our bees. b. We consider well-ripened buckwheat honey as safer than honey-dew; yet we prefer clover honey. It is on that account that we do not extract honey from brood-chamber in summer.

DADANT & SON.

a. I have had honey-dew that I should not consider it any risk to winter bees on; and I have seen that which I would know there was no risk to run in wintering bees on it, for they would surely all be dead before spring. b. I'd mind my own business (if I had any) and let the bees alone. If I hadn't any business, I'd proceed to find some.

A. B. MASON.

a. I have had too little experience with honey-dew, to answer this part of the question. b. Well-ripened buckwheat honey has given me the best satisfaction of any thing I have ever used for winter stores; and if I were to do any substituting at all, I should prefer to put such honey in place of sugar syrup.

O. O. POPPLETON.

That would depend. If the honey-dew were pleasant enough for my own table, I should not fear it. I have eaten honey-dew honey that was A No. 1. *b. If in the worker combs, give these combs to bees. If not, I would extract from sections, and feed. I see no trouble. Perhaps I misapprehend the question.*

A. J. COOK.

a. I should probably run the risk of wintering on honey-dew; but I would do this: Late in the fall I would give each colony 8 to 10 pounds of good sugar syrup. This would be stored where it would be first consumed by the bees, and would reduce the danger of loss to a minimum. b. I consider good buckwheat honey equal to white clover, for wintering bees.

GEO. GRIMM.

a. I certainly would feed them something—good honey or sugar. Pure honey-dew is death to bees in winter. I knew a man who experimented by feeding 20 colonies on honey-dew exclusively. He put them in a cellar, and all died. Other colonies, wintered in the same cellar, fed on good honey, came out all right. b. If they had well-ripened buckwheat, or any well-ripened honey from any kind of flowers, I should let them alone.

S. I. FREEBORN.

If the combs were filled with all honey-dew, no good honey in them, I should hate to risk them. I should say, extract a part of them, one-half, and feed sugar. Buckwheat and fall honey, gathered from actual flowers, is good for winter feed for bees, and is good on pancakes. Our bees have all some honey-dew, gathered after the basswood flow. We shall let it remain, as the bees have got a good supply besides, of basswood honey.

E. FRANCE.

a. I have had little experience, and I don't believe I would extract any sealed combs I have ever had, in order to replace with sugar syrup. I think, however, that in some places it is so bad that it might be best to extract the honey-dew. b. Put in the buckwheat in combs, if possible; but if extracted, be sure there is no foul brood about it, and then feed as early as possible in the Warner-Miller feeder.

C. C. MILLER.

a. I have had very little experience with honey-dew, and none in wintering bees. All honey-dew is not alike. If it were like some I have seen, I think

I would risk it, though to be on the safe side I might try half my bees each way. b. I am not familiar with buckwheat honey. We get very little of it here. The honey gathered from heart's-ease, which is a near relative of buckwheat, is unsurpassed as a wintering food. I think I should prefer it to clover.
J. A. GREEN.

The above is a question that is now agitating the mind of every bee-keeper in the Eastern States; and the honey-dew is of such a consistency that it can not be extracted. Those who have no extra combs have no alternative but to let them winter on these stores. Even with extra combs we do not learn of a bee-keeper who is feeding sugar syrup. The cost of sugar, time, and trouble, we think, will equal the value of the bees. The Rambler believes it will be cheaper to buy bees by the pound in the spring to supply the deficiencies. We are happy to say, that nearly all of our colonies have extra-nice clover and basswood honey to winter on. When extracting we save a case of honey for each colony for just such emergencies. b. If we had well-ripened buckwheat honey, we would certainly exchange the honey-dew for it, and feel no uneasiness about the wintering problem. So far as our observation goes, buckwheat honey is an excellent wintering food.
RAMBLER.

I can readily imagine, that, in a different apiary and field, the proper course of procedure might be different from that which is best here. With me it is a case of boy vs. woodchuck. Bees must winter on their own stores, else their keeper must go out of the business. In a field with an ocean of flowers, and comparatively little honey in them, it is necessary to keep a large number of colonies; and the expense of stocking them all up for winter with granulated sugar is too great to be borne. Keeping 100 colonies, and expecting to take 20 lbs. apiece from them, is a very different affair from keeping 40 colonies and expecting to take 100 lbs. apiece from them. I do not know that buckwheat is more unsafe for winter than other late honey, but I suspect it a little. I think honey-dew varies greatly as to its wholesomeness. If the stores are known to be bad, double up the colonies the stronger in the fall, so that they can keep warm without eating so much of the stuff.
E. E. HASTY.

Dr. Southard, of Kalamazoo, who, by the way, is one of the brightest and most expert bee-keepers of the day, as well as a physician and somewhat of a chemist, held views like my own regarding honey-dew; and several years ago, when everybody's bees all over the country gathered so much honey-dew, and were all going to perdition with it in the winter, the doctor thought he would like to know something positive about it; so he saw to it that five or eight colonies, I forget which, had nothing but honey-dew. He winters outdoors, and usually loses but one or two out of a hundred, and, sure enough, the five colonies having honey-dew exclusively, wintered as nice as a pin. I think I have demonstrated that dysentery among bees, the one and only worthy cause of winter losses, is not caused by honey-dew nor cider, nor any thing of the kind, but by the consumption of nitrogen from bee-bread or floating pollen. Well-ripened buckwheat is as good stores for winter as any in the world, in my opinion, and I am answering this question from long experience and observation. Your bees may die on the stores they have, or on

any other, except pure granulated sugar syrup in combs containing no pollen, and the bees placed in a warm repository. Then they never die.

JAMES HEDDON.

Only two of the above decide positively in favor of extracting the honey-dew, and replacing it with stores of sugar syrup—Dadant & Son, and Freeborn. Very likely there are circumstances where it would be prudent to throw out the honey-dew, but if it were well ripened and sealed up in the combs, I should be very loth to do so. Some years ago a neighbor of ours had the very worst kind of spring dwindling. The stores seemed to be frothy, dark-colored, and bad-tasting, and he felt satisfied it was the sort of food that killed them. I believe he saved only a few colonies out of an apiary of over 100 colonies. By my advice, however, he took some of the combs from the hives where the bees had died, and prepared several colonies the next winter, to go into winter quarters on these objectionable stores. They had almost no other. Did it kill them? No. To my great surprise, and his also, the colonies so treated wintered nicely.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

THE 1892 CENTENNIAL.

I wish to second your suggestion for the appointment of our good friend Dr. Mason for the '92 centennial. He is just the man. A. J. COOK.
Agricultural College, Mich., Oct. 10, 1889.

QUEENS AND DRONES IN COPULO.

Yes, some one about 18 years since related in the *American Bee Journal* that something struck on the rim of his hat and fell on the ground immediately before him. On looking closer he discovered that it was a queen and drone in the act of copulation.
Ventura, Cal. R. WILKIN.

THE SIZE OF THE JAPANESE BUCKWHEAT GRAINS.

I have some of the Japanese buckwheat; and, as I expected, I can not clean it with my mill. The grains are too large. F. A. SNELL.

Milledgeville, Ill., Sept. 26, 1889.

[Well, friend S., you have given us a positive proof of the extra size of the Japanese buckwheat that had not occurred to me before. I presume you can get an extra sieve, either of wire cloth, or, perhaps better still, perforated zinc, to match the Japanese grain. If others have had like difficulty, we will try to look up something specially suitable for the buckwheat.]

BEES NEAR SALT WATER.

Some years ago I saw an article in GLEANINGS, saying that bees near salt water would make salt honey, or honey that is worthless. That is a pure fabrication, or worse. I have 50 colonies in a salt marsh, and the bees do just as good work as those I have two miles from salt water, and there is no difference in the quality of the honey.

JOHN FARNSWORTH.

Honolulu, Sandwich Islands, Sept. 26, 1889.

[Friend F., we have had several communications to the same effect.]

WHEN IS IT NECESSARY TO WARM BEE-FEED?

I have a quantity of strained honey. Will it need heating, or any thing done to it before feeding?

W. STICKNEY.

Rathboneville, N. Y., Oct. 22, 1889.

[It is not necessary to heat honey for feeding purposes, unless you suspect that it *might* contain the germs of foul brood. If the honey is of your own production, and you have never had foul brood, feed without heating. In "feeding back" to fill out sections, the honey, after being diluted with water, is warmed if the weather is cool, to get the bees to take the food more readily. In feeding syrup late in the fall, we prefer to have it warm, or to feed it shortly after leaving the stove.]

REPORTS ENCOURAGING.

FROM 31 TO 50, AND 7016 LBS. OF HONEY.

I started in the spring with 24; bought 7 young swarms; increased to 50, and got 7016 lbs of honey, about half comb and half extracted. The white clover promises good for next year.

Raymore, Mo., Oct. 22, 1889.

W. O. HEIVLY.

CAPS THE CLIMAX.

As you want reports, this is mine. It caps the climax around here: 100 lbs. comb, 20 lbs. extracted, per colony, spring count; 24 in spring, 50 now.

Wagstaff, Kan., Sept. 28, 1889.

C. S. NEVINS.

FROM 6 TO 14, AND 600 LBS. OF HONEY.

My honey report is, that, with 6 swarms, spring count, I increased to 14 (all in good condition for winter), and took 600 lbs. of comb honey; 2 swarms gave me 300 lbs. by tiering up on Dr. Miller's plan.

Columbus, Wis., Oct. 7, 1889.

R. B. KIDDER.

FROM 3 TO 10, AND 350 LBS. OF COMB HONEY.

We have had a good year for honey here in Colorado, and all bee-keepers seem well pleased with their crop. I began last spring with three; since have increased (after transferring from box hives to frames) to ten, and have taken 350 lbs. of comb honey in one-pound sections, and have all in a fair shape to winter.

E. D. NICHOLS.

Montrose, Colo., Oct. 20, 1889.

FROM 34 TO 56, AND 2850 LBS. OF COMB HONEY.

We have had a fine honey season here, and honey is very plentiful and cheap; in fact, the market is overstocked. We can get only 10 cts. per pound for nice comb honey, in cash, and that only for small quantities. I have taken 2850 lbs. of comb and extracted, from 34 colonies, spring count, and increased to 56 good colonies with a great abundance of stores for winter. I finished packing 50 colonies in chaff the 10th of October, and will put 6 colonies in cellar.

GREEN R. SHIRER.

Greene, Ia., Oct. 18, 1889.

A GOOD REPORT FOR THREE SUCCESSIVE SEASONS;
ALFALFA IN ARIZONA.

I have been keeping bees here for three years. In 1887 I commenced with 34 colonies, and increased them to 51. I took 6358 lbs. of extracted and 300 lbs. of comb honey. In 1888 I commenced with 51 colonies; increased to 84; took 8600 lbs. of extracted and 600 lbs. of comb honey; lost three during the winter. Last spring I doubled back from 81 to 70; then I increased to 90, and took 12,948 lbs. of extracted honey. About 9000 lbs. was obtained from alfalfa.

J. A. CULBERTSON.

Phoenix, Ariz., Nov. 2, 1889.

GOOD FOR OREGON.

B. F. Kendall started last spring with two colonies, and now has seven. He took 600 lbs. of comb honey. No record I have seen can beat it. J. L. Cole started with 4, and has 15 now. He took 1000 lbs. of comb honey. This large yield is from sweet clover and alfalfa. By a process of irrigation we have had a continual flow up to the present, four crops of hay being cut from the alfalfa fields.

G. J. GRAY.

Dell, Ore., Oct. 12, 1889.

We are very much obliged for still another testimonial in favor of alfalfa grown by irrigation. See friend Ball's report on another page.

HOW AN INVESTMENT IN BEES OF \$145 BROUGHT
\$218 IN MONEY, BESIDES ALL THE FIX-
TURES FOR A SMALL APIARY.

I had 3 swarms in the spring. I bought 40 frames of brood and 20 queens, June 15. I put 2 frames of brood and a queen in a hive, making 20 hives. I let them build up, and made two swarms by natural swarming, making 25 in all. I took 2130 lbs. of extracted honey, and 50 lbs. of comb honey, making in all 2180 lbs., besides leaving from five to six sealed frames in a hive to winter on. I have invested \$145.02 in bees and fixtures this year, and in return I got \$218 worth of honey, besides 25 good strong swarms of bees, and all the fixtures; and at the same time I never lost a day, as I have charge of a mill and can not get away; and I never paid a dollar for hired help. Thus you see it leaves me \$73.00 for interest on money invested, besides all my bees and fixtures.

JAS. MCCUE.

Alabaster, Mich., Oct. 20, 1889.

Friend M., your experience is wonderful, and, I must think, quite unusual. It shows, however, what may be done by one who is full of enthusiasm during a favorable season.

FROM 84 TO 200, AND 6500 LBS. OF COMB HONEY.

We started off last spring with 84 colonies of bees—some blacks, some Italians, but mostly hybrids. The early spring was very favorable. This gave the bees a good start in the way of brood, but cold nights and cold rains kept them almost idle. When white clover blossomed they were very numerous, and the way they piled up honey and sent out young swarms was a caution. We sent for supplies, money with the order, and part of it was filled after the swarming and honey season was over, and we were out at least 2000 lbs. of comb honey, and 25 large colonies of bees. We were not prepared to extract, as we have been running entirely for comb honey. However, they continued to build some at intervals up to the 18th of September, when a severe frost ended their business in the surplus boxes. On counting up at the close, we find we have 6500 lbs. of comb honey, mostly in 1-lb. sections, and increased from 84 to 200 swarms.

Big Rock, Ia., Oct. 20, 1889. GEO. W. RANDALL.

Friend R., I hope it was not *our* establishment that made you wait until the honey season was over. But may be it was, if you were late in getting the order off. Here, friends, is a good illustration of the losses that come when you wait until the very last thing before you order your supplies. Better carry them over one season, or at least a part of them, than to be caught as friend R. was.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz.: *Sheer Off, Silver Keys, The Giant-Killer*; or, *The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room*. We have also *Our Homes, Part I., and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of Novice, Blue Eyes, and Caddy, and a glimpse of Ernest. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

UNCLE AMOS TELLS ABOUT A VISIT TO A POWDER-MILL.

PERHAPS the little friends will be somewhat surprised to know that Uncle Amos should take pains to visit a powder-mill, and to tell how powder is made; and, to tell the truth, I do not believe very much in gunpowder. There are, however, places where gunpowder is needed. Last evening at our teachers' meeting, one of our German teachers said that, in the old country, they used to have great high walls around their towns and villages, as a means of protection. These walls were built a great many years ago, but many of them are still standing. He said that, after the invention of gunpowder, they did not need walls, and so they were allowed to run down. Well, dear little friends, in our United States of America it begins to look as if we did not need stone walls nor gunpowder either. In our own town the fences are disappearing, and the pistols and bowie-knives are disappearing also; but for all that, our strawberries and Bartlett pears are safer than they have ever been before. How does it come about? Why, I think it comes as the result of the work of our Sunday-schools, Christian Endeavor societies, and young people's prayer-meetings. It is a good deal cheaper to buy these things at the fruit-stands than to steal them nights and then carry a guilty conscience around with you all the next day. I suppose, however, our policemen and officers of the law will need gunpowder for quite a spell yet. It is also used to a considerable extent to blast rocks, blow up stumps, etc. Gunpowder is many times a very good servant; but people who get mad very easily ought never to be trusted with it.

Among other pleasant recollections of my visit to friend France is that of a visit to one of the largest establishments, probably, in the country, for the manufacture of powder. The plant occupies perhaps 100 acres in a lonely valley at the foot of a great hill. I say "lonely," for nobody wants to live within at least half a mile of the powder-

works. Before we came to the factories we saw the magazines, or storehouses, scattered here and there out in the fields. They endeavor to have them far enough away so that, if one blows up, it will not ignite the others. Since powder has been stored in tin cans instead of in wooden kegs, however, I believe the danger of blowing up the magazine is much less. Now, instead of one great factory there are only solitary buildings scattered through this hundred acres. As a rule, each workman has his own building. This is thus arranged, in order that no workman may lose his life through the carelessness of others. If he is "boss and all the hands," he can have every thing just as he wants it; and if he blows himself up he alone is to blame. White poplar or willow is used for making charcoal for powder. The material would make very nice sections for honey. I believe it is grown purposely in the vicinity for the powder-men. It is burned into charcoal a good deal as they make charcoal for other purposes, only they have nicer kilns, and they take more pains. The other ingredient, saltpeter, is brought from South America, in bags. It is dried and pulverized on the grounds. The third ingredient, sulphur, is, I believe, nearly ready for the powder as it is purchased. No railroad runs nearer than several miles, so the materials have to be brought in, and the powder carried away on wagons. Very likely they would not want a locomotive much nearer than half a mile, any way. A great part of the works is moved by water-wheels, although they have one very nice steam-engine. The power is, however, carried by long tumbling-rods or wire rope, to the mills. Steam for drying the ingredients and the powder is also carried a long distance. After the materials are pulverized separately they are mixed together and still further pulverized in large revolving cylinders containing copper balls. When I asked some questions about the balls, the lonely operator stopped one of the barrels, reached his hand in, and gave me a couple of the balls to carry home. They are about as large as hickory-nuts. They have to be made of copper, so they will not strike fire. There are a series of mills used for making powder into grains. After it is ground to an impalpable powder it is pressed into cakes by a powerful hydraulic press. This press is moved by a water-wheel. This wheel starts and stops itself. When the buckets get all full of water, it starts up and turns an enormous screw until it makes every thing squeak. Then it rests a while, apparently, and starts up again, and gives the powder cake another awful squeeze, and so on. Each time it seems to squeeze it down a little more solid. In the caking-mill fine powder is kicking around the floor, perhaps half an inch deep. The dust has settled on the beams and rafters until they are as black as ink; and if you touch any thing anywhere, you are sooty black. The operator looks like a veritable black man. When they get through work they slip off all their clothing, and take a bath. Most of the hands, I believe, work by the piece, so

they can start and stop when they like. The water-mills are always ready to run. If they do not use it, the water runs away, so it does not make any difference when they start or when they stop. The coarse grains of blasting-powder, almost as large as kernels of corn, look very handsome. The grains of powder are polished with something very much like stove-black, and they shine just like a nicely polished stove. I do not know whether the shine is to make the grains look handsome, or whether the powder goes off better when it is shiny, and pretty to look at. In the drying-room, where the grains are thoroughly dried, it was so hot I could hardly endure it, even for a few minutes at a time. I asked the attendant how many degrees it would have to be to go off, and send us all into eternity. It did not require very many degrees, but he assured me their machinery was so precise that it could not, by any blunder, run up to the exploding-point. Explosions do occur every little while, so friend France states, and the people in the vicinity have become accustomed to hearing them. If it is one of the mills where the powder is in the finished state, it goes off like a cannon; but if it is the powder before it has been made into grains, the report is somewhat drawn out like a slow clap of thunder. Some years ago one of the men who had charge of the mills forgot something, and went back after dark with a lantern. He knew better, but he thought he would be very careful. Something happened, and the powder got afire. This fine powder burned so slowly, however, that he had time to jump into the race and dive until the explosion was over. Then he put up his head and got out comparatively unharmed. Had he not had his wits about him, he would surely have been horribly burned to death.

Visitors are permitted to go anywhere they wish, but they must not smoke cigars, nor carry firearms. If a man comes on the premises with a gun in his hand, he is led off by the collar. Some years ago a young dude by some means slipped on to the grounds unobserved, with a lighted cigar in his mouth, and, before anybody knew it, he marched into one of the powder-mills, and asked to see the foreman. The men in charge instantly replied, "He is right here by the door," and led the way. As soon as they got him outside they took him by the collar and dragged him off to a safe distance, and then gave him such a shaking and talking to as he will probably remember as long as he lives; and he will probably not go into a powder-mill again with a lighted cigar. My friend, if I were you I would not go into *any* kind of a mill with a cigar. No, I would not even go into any building with one; and, come to think about it, I would not go anywhere else with one. If you expect to go to heaven you may be sure you will have to throw away your cigar a long while before you get there. O boys, I wish you would throw the cigars away now, before you get any further along in the journey of life. Please do it, out of respect to Uncle Amos, even if for no other

reason; or, better still, throw it away now for the sake of Christ Jesus.

CLOVER-BLOAT.

My father uses a wisp of hay twisted, and puts it in the animal's mouth and ties it around the horns.
Carlton, Pa., Aug. 24, 1889. HUGH HOGUE.

BOBBIE AND NELLIE.

We have 50 colonies of bees. We take GLEANINGS, and I suppose we always shall. I have two pigeons for my pets. I call them Bobbie and Nellie.
Winnie Naylor, age 13.
Lockharts, W. Va., Aug. 16, 1889.

BEE-STINGS FOR RHEUMATISM.

Some time ago a doctor discovered that stings would cure rheumatism. He tried it on a patient, and found it to work satisfactorily. Now he has a colony of bees, and has cured a number of patients, and has inflicted over 3000 stings.

I. E. HINDMAN, age 14.

Colora, Md., Aug. 23, 1889.

A good deal has been said lately concerning the value of bee-stings as a cure for rheumatism; but it seems to us your doctor must have found out a new way of inflicting stings to do it in such a wholesale way. *Three thousand stings!* Whew! How does he do it? He must have an improvement on the bees' way. We wouldn't want to be doctored by that doctor.

A GOOD REPORT FOR CARNIOLANS.

Father has 75 swarms of bees. I help him take care of them. Sometimes I hive them alone when he is away. He has Italians, blacks, hybrids, and one Carniolan. He likes the Carniolans best, and so do I, because we have to use no smoke at any time. They make very white honey. Our Carniolan swarm was so light in the spring that we put it on four frames. It built up of itself, and made 61 one-pound boxes of very white honey, and swarmed once.

HENRY C. COX, age 11.

Monkton Ridge, Vt., Oct. 2, 1889.

BEEES, CATS, DOGS, ETC.

My Uncle Joseph has taken about 500 lbs. of comb and extracted honey, and has sold almost all of it. I have a little dog named Gypsy, and the bees think he is a little bear. He got stung last Saturday. We have four cats. The cats don't like the dog. One of our cats is very peaceful, and doesn't like to fight; and when he is asleep, Gypsy will come and sit on him.

MABEL BRIGGS.

Cornwall Landing, N. Y., Nov. 4, 1889.

THE IGNOTUM THE BEST TOMATO.

We raised three plants of Ignatum tomatoes. Papa set two of them by the side of the house, and trained them up. One of them covered a space four feet wide and eleven feet high. Everybody thinks they look very handsome, especially when they had those large, red, ripe tomatoes on. Papa thinks it is a very nice way to raise tomatoes, where you have a small garden. Next year he says he will train them all up by the side of the house. We think that the Ignatum is the best-tasting tomato we ever had. Papa takes GLEANINGS, and expects to keep bees again.

LULA K. RUGER.

Binghamton, N. Y., Oct. 14, 1889.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to *GLEANINGS*. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to *GLEANINGS*, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

THE TOBACCO HABIT, AND ITS EFFECT UPON SCHOOL WORK.

The following is from the principal of the Iowa State Normal School. I have copied it from a little tract sent to me:

After making a study of several hundred boys, running through a period of ten years, I give only observed facts, and neither assume the conditions nor jump at foreordained conclusions.

1. Boys that begin the habit at an early age are stunted physically, and never arrive at normal bodily development.

2. Accompanied with the use of the narcotic were certain disordered physical functions, such as indigestion, impaired taste, defective eye-sight, dull hearing, nervous affections, and diseases of the heart. I have not found a single case of early addicting to the habit of tobacco-using that did not suffer with one or more of these direful abnormal conditions.

3. Tobacco, used in any form, destroyed the ability to apply one's self to study, and prevented his comprehending or remembering his lessons. The mental faculties of a boy under the influence of the narcotic seem to be in a stupor; and since depraved nerve power stultifies and weakens the will power, there is but little use for the teacher to seek to arouse the dormant, paralyzed energies, or to interest and foster the fagged desire. I have not met a pupil, that is addicted to the habit, who will go through a single day's work and have good lessons. I have never had one whose scholarship record was good, and in almost every case the deportment was below the average standard. At the regular examinations for promotion, nearly every one of the tobacco-using pupils fails in doing the most reasonable test work, even if this is not the first time the work has been passed over in class. I have had numbers of cases in which they have remained in the same grade for four successive years, and then they were not ready to be advanced into the next higher class.

Actual Cases.—1. A high-school boy, who had always done excellent work, was reported one term as not getting his lessons. I had a talk with the boy, and stated the facts, assuring him that with his past record his poor work was unexplainable, as he insisted that he devoted his time faithfully to his studies. He denied using tobacco at all. His work failed from month to month; and before the year closed, his parents withdrew him from school. His father deeply regretted the failure, admitted that a change had come in the boy's conduct at home, but as he had heretofore been truthful and faithful he could not think that the pre-supposed cause was the true one. In a few months the habit, thus far secret, became more pronounced and more public, and it was absolutely established by the boy's own admissions, that it was begun several months before the trouble noticed at school, and that no one knew it save the salesman that furnished him the supply of the narcotic.

2. Four years ago a boy entered one of my primary schools as a chart pupil. Before the boy was four years of age he had learned the habit of smoking cigarettes and stubs of cigars. His father taught him the use of narcotics, and considered it sport to see his son exhibit the habits and tastes of his elders. During the four years he did not complete the twenty-four lessons on the chart, although he attended regularly, and applied himself as diligently as the average pupil of that grade. He

seemed perfectly unable to learn like other children, though he was at the beginning a precocious, promising child. His mental activity was so dulled and paralyzed as to render him but little better than an idiot or imbecile. Experience has shown that the younger the habit is acquired, the more disastrous the results to the mentality of the child.

3. One boy was a successful primary pupil. His work and his interest were constantly praised by his teachers. On his entering the last half of the third grade, his work began to lag and his interest to decline. At the examination for promotion his case was conditioned, and it was detected that he had begun some months before to use tobacco. His parents were informed, and strenuous efforts were made by his teacher to get the habit restrained and corrected. His reform was not secured; and, though he remained five years in the same grade, he was never able to advance on merit, and several trial promotions proved failures.

In a case where reform was secured and the habit overcome, the pupil again returned to normal progress, and had a successful career as a student.

Other Observations.—So far as my observations have extended, not a single boy has passed the examination required for admission to the high school after he had acquired the habit, and not one has graduated from the high school who began the habit after beginning his course in that school.

But the moral results are also as serious. Pupils under the influence of the weed are constant subjects of discipline, are not truthful, practice deception, and can not be depended upon. A change in character in a formerly good boy is a very strong indication that some habit is getting hold upon him, whose tyranny must be broken before he will again be clothed in his right mind. The worst characteristic of the habit is a loss of personal self-respect, and of personal regard for the customs and wishes of ladies and gentlemen, especially when among strangers.

If these observations mean any thing, they declare that something ought to be done to save child-life from the pitfalls that commercial interests are digging, and that *greed* is encouraging; that more should be done than to instruct by oral or text lessons in school; that teachers, parents, and philanthropists are not yet sufficiently aroused regarding the magnitude of the evil of tobacco-using by children; that, in the crusade against alcohol, we should recognize that other evils, though more quietly, are just as surely sapping the strength and destroying the vigor of the youth of this generation.

I have read the above over very carefully, some parts of it several times, and I am forced to say that the facts given accord exactly with my own experience. I am president of our school board in Medina. I have talked with the boys in our schools, in regard to the use of tobacco. I have watched those who persist in using it, for years, and, awful as it is, it is no doubt true. My friends, are you setting as bad an example before your boys and your neighbors' boys? and, mothers, are you sure your boys are not using it secretly? Again and again have I been astonished and pained to learn that boys had been some time secretly using tobacco when their parents were members of churches, and did not in the least suspect such a thing. Such boys, however, soon drop away from the Sunday-school. The presence of good people is a reproach to them, because they feel guilty in their hearts—guilty of living a falsehood, even if nobody had ever asked them whether they used tobacco or not; and it seems to me that the worst kind of falsifying in this world is telling a falsehood by actions—telling an untruth to everybody whom you meet, in trying to have them suppose you are a clean, pure-minded boy. Every boy tells such a falsehood when he puts his cigarette out of sight when he sees some-

body coming. Can any boy be real happy, and have any real fun, so long as he is *living* a falsehood every day of his life?

TOBACCO IN THE HOME.

The following, evidently from the New York *Graphic*, has been sent us. Whatever its source, we are glad to give it insertion in this department. It is what a mother says of tobacco. It reads as follows:

"My little girl," said a pretty young mother to a New York *Graphic* writer the other day, "has been nearly killed by her father's smoking. You see, when I married I determined to be very liberal and advanced, and to do what I could to make home as attractive to Tom as his club. Mother would never allow smoking in her house, except in the smoking-room; but I made sage reflections upon the tactlessness of women in managing men, and determined that Tom should enjoy me and his cigar together whenever he pleased. When my daughter Lillian first began to be brought out of the nursery she was as round and rosy a baby as ever you saw; but we had not been having her with us much as we sat together until she began to grow listless and pale, and lose her appetite. I called in our doctor, but nothing did her any good; she seemed to be just dwindling away, and she continued to dwindle until her father was called away on business for a month. Then she picked up, and was quite bright again by the time he came home. That happened several times, until I said to myself one day, as she was frolicking with me: 'Her father never saw her like this.' Then it suddenly flashed on me that there was something very strange about this. The upshot was, that we found beyond a peradventure that it was living in her father's tobacco smoke that was killing the child. I don't feel so much wiser than my mother now as I used to, and smoking at our house is again practiced on ancestral principles—at the top the house."

GLAD TIDINGS.

I think I shall have to claim a smoker of you, having ceased using tobacco. Send it, for I want some encouragement. When I first took GLEANINGS I paid but little attention to the Tobacco Column; finally, however, I got to reading the different accounts of those who had quit using the weed. I generally read them with a sarcastic smile, and a "it can not be did" sort of expression on my face; but, like the noted drop of water, it made an impression at last, and I thought that what man has done man can do. So here goes, and they went (tobacco and pipes). Of course, I agree to the conditions laid down by you regarding the smoker, if you send me one. JOB DAVIES.

Ballinger, Tex., Oct. 22, 1889.

Most certainly you deserve a smoker, friend D., and I should be very glad indeed to give away a thousand under just exactly such circumstances.

THE NOBLEST WORK OF GOD.

Please find two more claims for the smoker. Dewey Johnston, my neighbor, has started in the bee-business. I showed him GLEANINGS. He has concluded to quit the use of tobacco. I have smoked for 25 years. I quit on the 10th of last month. Now, if you see fit to send the smokers I will give you my word that, if we don't keep our pledge, I will send you the price of the smokers. "An honest man is the noblest work of God," so says Burns.

Waco, Neb., Aug. 19, 1889.

DANIEL MEKLE.

GOING SECURITY, AGAIN.

Will you kindly send Mr. Fred Karow, of Windsor, one of your smokers? He will pledge himself not to smoke, or use tobacco in any manner.

Should he, however, fail to fulfill his promise, I will pay for the smoker.

CHAS. REIDEL.

Windsor, Dane Co., Wis.

GOING SECURITY FOR A SON.

My son, A. B. Morgan, has quit the use of tobacco. I told him you would give him a smoker if he would quit. I will go his security; and if he commences again, I will see that he pays for the smoker.

Waynesburg, Lincoln Co., Ky. A. B. MORGAN.

MORE SECURITY.

Friend Root:—Still the good cause goes on. My friend N. E. Young promises to quit the use of tobacco, if you will send him a smoker; and if he ever uses it again, we or I will pay for it.

Anneville, Tex., July 14, 1889.

G. H. REED.

BREAKING AWAY FROM BONDAGE.

I have used tobacco with few intermissions, since I was six years of age. I am now 54. I read all that is said on the subject of tobacco in GLEANINGS, and have made up my mind to abandon the use of it, if I can hold out; and if I fail, I will pay for the smoker.

J. L. PELTON.

Sharon, Barber Co., Kan., Aug. 3, 1889.

THE FRUIT OF THE TOBACCO COLUMN.

My friend, Abner Sanders, has quit the use of tobacco after having used it for 17 years. Please send him a smoker; and should he use it again, I will pay you for the smoker. He was influenced to quit, partly if not wholly, from your Tobacco Column. Pray for him, that he may hold out faithful.

Bokoshe, I. T., June 17, 1889.

J. T. LEARD.

GOING SECURITY, STILL AGAIN.

I see in the Tobacco Column that several have quit the use of tobacco, and you sent them smokers. If this offer will hold good with a friend of mine, you will please send him a smoker. His name is Wesley Eakins. He used the filthy weed 26 years, and has entirely quit its use. If he ever resumes its use, I will pay for the smoker.

Herbst, Ind., Sept. 13, 1889.

NAT. HOGGALL.

THE OLD LIFE ENDED, AND THE NEW ONE BEGUN.

My nephew, Mr. Artie Flouse, of Coral, Mich., wants a smoker. After reading my GLEANINGS he concluded to quit the use of tobacco, and does it under the conditions given therein. He has smoked and chewed for a number of years, but has lately joined the Disciple church. He was baptized in the waters of a beautiful lake, and is now striving to walk in newness of life. If he breaks his pledge, I will pay for the smoker.

Coral, Mich.

LEMMON W. ITZENHouser.

HOW TO QUIT USING TOBACCO.

The way is very simple, and easily explained; and I will try to do so by giving you my experience with it. I commenced using tobacco when very young—so young that I can not remember my age. I became a great slave to it. I also learned the habit of using snuff—a mean practice, and one to be abhorred by ladies and gentlemen. But, to the point. How did I quit it? This is the way. I saw that I was committing a sin against God, so I determined to quit by his help. I took my sorrow to him in prayer. See Isaiah 53:4; Psalm 125:1. You can see by these how I conquered my lust for tobacco. Walk ye in it.

W. A. WILLIAMSON.

Friendly, W. Va.

CARRYING HIVES INTO THE CELLAR.

ALSO A NICE WAY TO GIVE THE CHILDREN A RIDE WHEN YOU HAVE NO HORSE.

SOME time ago, a correspondent (whose name and address was mislaid) sent us a very neat drawing, showing his method of carrying his colonies into the cellar. The drawing was accompanied with no description; and, in fact, little is needed. We have reproduced the drawing as below:



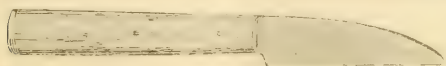
THE CHAIR METHOD OF CARRYING HIVES INTO THE CELLAR.

The chair, it is to be observed, is to be attached to the back of the bee-keeper, pack-peddler fashion, the hive having been previously secured to the chair by means of a cord. We tried the plan, and found that hives *could* be carried into the cellar, but there was so much trouble and toggery about getting the hives upon the chair that we concluded it was more trouble than it was worth. Either an assistant has got to lift the hives upon the chair, and secure them, or else the bee-keeper must himself put the chair upon a shelf or box nearly the height of his waist, so as to obviate the necessity of stooping when about to assume the burden. One man can carry quite a burden pack-peddler fashion, and perhaps some may find the hint of value. The experiment can be very easily tried, and without any particular outlay.

A PROPOLIS-KNIFE.

A HANDY LITTLE TOOL FOR THE PURPOSE.

SEND you by this mail a sample of my knife for cleaning sections of comb honey. It is the best thing that I have ever seen for the purpose, and I speak from experience, as I have used them for four or five years past in preparing many tons of honey for market, and have gained a



WRIGHT'S PROPOLIS-KNIFE.

reputation for clean and neat appearance of my honey in the market, which is partly due to the im-

plement and partly to the proper use of the same.

In reading the answers to an inquiry in GLEANINGS and the *American Bee Journal*, some time ago, as to the best tool for cleaning sections of honey, I was surprised to learn that most of the parties used an ordinary case-knife, and a few a jack-knife. I believe that those who give my knife a trial will concede its superiority, both for speed and workmanship. It can be made from an old case-knife or a cheap new one. I have made several from knives purchased from the five-cent counter. It needs touching up several times a day with a fine file, to keep the corners of the edge square and sharp. The edge is filed square across, and both sides filed down, so as to keep it less than a sixty-fourth of an inch in thickness at the edge, which makes it sharp enough to cut chunks of propolis out of the corners, but can not cut the wood. By grasping the knife near the point with the thumb and forefinger, using them as a gauge, the section can be cleaned all around the edges without injury to the comb; then go all around the outside of the section with the full length of the blade, which should be an eighth of an inch longer than the width of the section.

The past season has been the poorest for several years in this section, owing mainly to cold and rainy weather the fore part of the season.

Altamont, N. Y.

W. D. WRIGHT.

CONVENTION NOTICE.

The programme for the American International Bee Association, which is to meet at Brantford, Ontario, Canada, Dec. 4th to 6th, is not yet complete. However, from the following it will be seen that every effort has been made to have a good one. The first session will be at 2 P. M. of the 4th.

PROGRAMME.

Bee-keeping an Occupation for Women. Miss H. F. Bullers, Campbellford, Ont.

Cellar vs. Outdoor Wintering. R. McKinght, Owen Sound, Ont.

Shipping Queens. F. H. Macpherson, Beeton, Ont.

Disposal of the Honey Crop. Thos. G. Newman, Chicago, Ill.

Cellar Wintering. S. T. Pettit, Belmont, Ont.

Riding Hobby-horses; Bee-keeping a Recreation from other Pursuits, and an Antidote for Disease. E. R. Root, Medina, O.

Alimentary System, or Apparatus, of the Honey-bee. Prof. A. J. Cook, Agricultural College, Mich. S. Corneil, Lindsay, Ont., subject not given.

The president will deliver his annual address on the evening of the first day. Reduced rates, at least one and one-third fare for return trip, may be secured on Grand Trunk and Canadian Pacific Railways. The latter tickets must be purchased to and from Galt or Woodstock, and thence to Brantford via Grand Trunk Railway. For further particulars, apply to the secretary. Remember, you must have a certificate when purchasing your tickets for Brantford on Grand Trunk Railway, or Galt or Woodstock on the C. P. R'y. Reduced hotel rates (\$1.50) may be secured at the Herby House. The Commercial Hotel, also near the place of meeting, is a good one-dollar house.

R. F. HOLTERMANN, Sec'y.

Romney, Ont., Canada.

OUR HOMES.

I will both lay me down in peace, and sleep; for thou, Lord, only makest me dwell in safety.—Ps. 4: 8.

THE WAGES OF SIN IS DEATH.

AFTER visiting the German Sabbath-school, that I told you about in our last, I selected, among the great array of churches in Chicago, the Plymouth Congregational. I had had some little experience in finding places of worship in great cities, miles away, and so I inquired at the hotel about how far it was. As it was toward an hour's ride on the street-cars, I just had time to be on hand promptly, after the Sunday-school was out. Considerable has been said about the convenience of street-cars for taking people to places of worship. In a city like Chicago it would be a rather hard matter to get to many of the churches, without the aid of the street-cars or a horse and buggy. One reason why I did not go on foot was because of a lack of time; and another, the conductors on the street-cars are usually better able to direct you to any given locality than anybody else. They told me at the hotel what line of street-cars to take; therefore my first direction to the conductor was to put me off as near as possible to Plymouth Church.

"Plymouth Church?" said he. "Well, I'll be blamed if I know where Plymouth Church is."

Here he turned around to a car full of passengers, and called out, "Does any one know where Plymouth Church is?"

No one could tell. Then I bethought me that I had torn a list of the churches from a daily paper; and, sure enough, it gave the street and number. As I held it up to him he said, "Oh, yes! we run within half a block of it."

When we reached the vicinity of the magnificent structure I expected that the crowded car would be pretty well emptied, although I had noticed before that the conversation and appearance of the inmates of the car did not seem to be just what I should expect of church-goers. I felt a little sad when the car stopped to let me off, and I found that I was the only individual who stopped. Perhaps street-cars *do* carry people to church; but, my friends, I begin to be a little doubtful in regard to the matter. Next time, I think I shall start earlier, and go on foot, even if it is four or five miles. The voice of conscience had been whispering all along the route that I was not quite in a line, or, if you choose, I was not in the company, of those who "hunger and thirst after righteousness." Now, I realize that I have a great deal to learn about great cities. I realize, too, that I often make mistakes; and I believe that I am open to conviction in regard to this matter of running cars of any kind on the Sabbath.

Plymouth Church is the finest structure in the way of church edifices that I ever entered in my life. The audience numbered up into the thousands—I do not know how many. There were seats in the various vestibules, where strangers waited until the

ushers were ready to conduct them to the proper pews. The ventilation and heating were like a spring morning. I am glad to know that wealth has succeeded in giving us an atmosphere as pure and invigorating as we get outdoors, or pretty nearly that. The singing was equal to any, I think, I ever heard in my life; but I had just a little bit of feeling that a part of it would have been more appropriate—that is, letting your humble servant judge—for some weekday entertainment. I had quite a curiosity to see what the pastor of such a great and such a wealthy congregation looked like. He was a rather spare man, not above 35 or 40 years of age; but a very few words from him gave me the impression that he was able to command the attention of even that vast audience. The question kept coming up, "What does he possess above ministers in common that should have induced the people to call him to a place of such great responsibility?" Was it a fine and superior education? was it wonderful natural gifts? or was it the fullness of the Holy Spirit that carried conviction to the hearts of each one of his hearers almost in spite of him? I soon decided that it was a good deal of all together. Perhaps most of you know already that I am a little inclined to object to the ways and customs of the very wealthy—not that I want to find fault with them, but as a rule it is hard work for me to feel at home where money is expended lavishly. There is a sense of relief when I exchange living in the great hotels for that of my humble home. In the same way there is a sense of relief when I step from the palace cars into the companionship of the more humble working people of our land. I expected, or perhaps, rather, feared, that I should be a little homesick when the exercises of this great church were contrasted with those in our little town of Medina. Now, I believe there are extremes both ways. We should be as careful about being uncharitable toward the rich as we are toward the poor. Although I did not see people stepping out of the street-cars to go into this great church, I did see great droves of them stepping from magnificent equipages (many of them having liveried footmen) to open the carriage-doors, and to hand out the different members of the family. Great numbers of these footmen sat holding the horses during the whole of the services. I felt a little sad to see this; for at our church at home, nobody stays out of doors. Nobody, so far as I know, waits on his superiors while they worship God. This matter, however, is not in my province. Very likely Moody has taken up this subject already. I expected to attend his meetings while I was in Chicago, but he was temporarily absent at the time. Now about that sermon.

I can not remember the text. I do remember, however, that the pastor spoke of having read recent publications from the pen of some of our modern scientists. He mentioned that there is a species of philosophy becoming prevalent, to the effect that sin is not such an awful thing after all—that we are simply learning by experience.

Every child that learns to walk has a good many falls, and bumps its nose a good many times before he learns to be careful. In the same way, say the modern scientists, we commit sin—it is a part of our experience. We can not very well learn better until we have sown our wild oats, and become capable of looking on all sides of the question; therefore he who commits sin or crime need not feel so terribly bad about it; it is more or less the habit of every human life, and the world is step by step growing better. In the present age, and with our limited knowledge, it could hardly be expected that we should do any better than we do. We shall all get over sinning by and by, even if we do not make such a terrible tirade about it as some of the fanatics and extremists do.

While he was speaking I remembered that I had again and again heard the same kind of philosophy; for it is a sad fact, that there are men—yes, even teachers in science—men with fine education and intellects, who seem to seek some relief from a guilty conscience other than repenting of and forsaking their sins. They evidently turn to science for some relief or escape other than the only one ever opened since the beginning of the world—the relief through Christ Jesus. Without any personal acquaintance or knowledge of some who stand high as scientists, I have been led to feel from the very tone of their writings that they were guilty at heart—guilty, perhaps, of oft-repeated and deliberate sin. They try to delude themselves by the thoughts that the pastor expressed; and they seem to find a relief in trying to teach others that we are so constituted that we can not very well get along without more or less deliberate transgression. God says, "The soul that sinneth, it shall die." This class of modern scientists take it up in about the same strain that the serpent spoke to Eve—"Thou shalt not *surely* die." Of course, the speaker held up the Bible and Christ Jesus as the only relief and the only refuge. Here his eloquence waxed stronger and stronger. He held that great audience spellbound; and as I heard him plead for the dear Savior, wave after wave passed through my soul until I most fervently thanked God that such an earnest and powerful advocate had been raised up to publicly proclaim against the teachings of infidel scientists. The preacher spoke of sin and crime exactly as if he had been through the horrible miry depths himself. As he recalled some of the experiences of my own life I was fairly startled. He did not say in plain words that the experience he related was his own; but he made sin in the sight of God, if not in the sight of men, more hideous than I had ever seen it pictured before. As I went out it was with a fervent feeling of thanksgiving and praise that our great cities, with all their corruption and sin, are also provided with such earnest and faithful advocates of purity and righteousness as the one who had just delivered the message that God had given him. I had visited only *one* of the great churches, and their spires reach aloft through every part of the city. Who can count them? The Sabbath day [was

only a little more than half gone, and I had had two experiences—that of the German Sunday-school, and the sermon I have just mentioned, that was a surprise and a glad surprise to know that God is working with great power, not only in the basements of these grand and beautiful buildings, but even in the audience room; and I feel glad to think that Chicago, with all its great achievements, is scarcely a bit behind in its efforts to glorify God, and to spread the gospel of righteousness.

Now, dear reader, if you have ever been tempted to delude yourself into the idea that sin is not so awful bad, listen to the warning I have tried to carry to you to-day. A man in our jail once confessed to me, in an indifferent manner, a crime he had recently committed. I remonstrated, and tried to impress upon him the terrible consequences that must follow such an act. He broke out a little vehemently and said, "Why, Mr. Root, you don't know any thing about what is going on in this world. You are innocent and unsuspecting, and you think everybody else is the same. Why, there is not a man who walks the streets but has at some time or other been guilty of this very thing you make such a fuss about." My friends, his statement is not true; and even if it were true, it does not help the matter. He had deliberately broken one of God's plain, positive commands; and the bad, wicked, miserable life attested to the fact that he was reaping his reward. Perhaps he deluded himself with the thought that others had done the same thing, and repented and had been forgiven. I have even heard men quote the patriarchs of old as an example, that they might transgress and it will finally be overlooked and forgotten. The patriarchs of old were not forgiven unless they were truly penitent. It is true, that Jesus offers pardon as a free gift to all who will accept it. "Him that cometh to me, I will in no wise cast out." But, my dear friend, it is not such an easy thing to *come*, after a life of deliberate sin and crime. There is a boundary line; and those who deliberately transgress until this line is passed, do not, as a rule, turn back or repent. The words of one poor soul still ring in my ears. He was on his dying-bed, and in great agony of mind over his past wicked life. I searched the Bible for promises; but in answer to them all he said, "It is too late, too late." I was obliged to leave him, but I could not learn after his death that any peace ever came to his poor lost soul.

In our recent Sunday-school lessons we have learned much of David, and his life has been quoted in the way which I have mentioned. David was a godly man; but through the temptations of riches and power he became careless. A snare was set for his feet, and he fell. I believe, that from that moment his peace of mind and peace with God was gone. It never came back until he was entirely penitent, and had repented in dust and ashes. And even then, what anguish and torture racked his poor soul, even to the last days of [his] life—anguish and torture that he brought directly

on his own head by his own act! not only torture and anguish to himself, but a great stream of sin and crime threw its slimy folds down through generation after generation. One of his own sons committed a horrible crime that is so rare in our day that many do not even know the name of it. Another son *murdered* this brother, pretending it was to avenge his sister; but it is more likely that it was because this brother stood in his pathway to the throne. After that, he with consummate skill laid a plot to rob his aged father of the throne, and even planned to put his father to death, because he could not wait until the throne should come to him lawfully. To carry out his schemes he pretended to be pious. Now, it does not require a very close and acute study of the Scriptures to see that all this fearful bloodshed and catastrophe was almost the direct result of the decision of a single moment. Once in his life David consented to follow the promptings of Satan. He forsook the God of his youth, the God of his manhood, for a bauble that Satan held up to his gaze. Then he tried to cover up this sin. He was foolish enough to think that, because he was *king*, he could brave public opinion. If you want to know how he writhed under the tortures of a guilty conscience, read some of the Psalms. "Truly many sorrows shall be to the wicked; but he that trusteth in the Lord, mercy shall compass him about." A few days ago, by accident my eye caught on a single verse of a Psalm. By the way, I am now enjoying perhaps better health than I ever did before, but I still hold on to my noonday nap. I have tried going without it; but when I have much mental work, if it is missed I feel in some way unhinged all the rest of the day; my brain is cloudy and dim; but after having, say, ten minutes' sleep, or just enough to entirely lose consciousness, I am bright and clear all the rest of the day. Now, this text I am going to give you, I often think of when I begin to feel the need of this daily nap; and, by the way, I have discovered that, in order to drop to sleep instantly, I must have a *clear conscience*. Now, then, listen to the text that has of late become like sweet music to me: "I will both lay me down in peace and sleep, for thou, Lord, only makest me to dwell in safety." My friends, let me make *you* a present of *my* text. Take it with you to your day's toil, and hold fast to it when you go to rest after the toil of the day is over.

As you lose consciousness, let your last thought be in a line with the text; and when that last sleep that knows no waking shall come, may the thought be yours.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

GARDENING IN NOVEMBER.

AS a rule, most gardening operations, unless they are conducted under glass, are suspended, at least in this locality, during the present month. Our grounds are, however, making a very pretty show just now. For the first time

we have tried the Chinese Rose winter radish and Black Spanish. We are greatly pleased with both of them, especially with the Rose. Even when as large as a good-sized apples, they are perfectly crisp and tender, and not as strong as spring and summer radishes. We have had such fine radishes all summer long, that most of our customers were getting a little tired of them; but after they got a taste of the above, a brisk trade started up at once.

Spinach is making a beautiful growth, and we are having a brisk trade in it, at 3c a pound. The greatest trouble in getting it introduced is, that everybody will persist in calling it "greens." It is not greens any more than asparagus is greens, and it should be cooked something as we cook asparagus.

We are also having a nice trade in Purple-top Globe turnips. They are pulled before they get to be much larger than apples; and, cooked the same day they are gathered, they are excellent.

Of course, we have our greenhouse and cold-frames pretty well filled; but so far we have not had freezing weather enough to prevent all of these and other hardy plants from making a better growth outdoors than they do inside.

Celery is making a finer growth at this date, Nov. 13, than at any other time during the season; and we are furnishing our wagon with beautiful stalks of Self-blanching and Golden Dwarf, which goes off briskly at 10 cts. per pound.

We have very fine tomatoes yet on the wagon, that come from our greenhouses. The frost nipped the foliage a little, one or two nights, even through the glass; but they are now growing and ripening all right.

The Oregon everbearing strawberry is already putting out buds to blossom, both in the greenhouse and outside. There is certainly something peculiar about the persistent disposition of this strawberry to bear fruit all through the summer, and even late into the fall. The large strong plant, mentioned in our last issue, full of berries, has taken root, and the berries are slowly ripening. We are going to try hard to make them produce runners under glass. If we do, our friends shall have plenty of plants.

We have beautiful lettuce still growing finely in the open air. Grand Rapids seems to be very hardy, for late lettuce in the open ground, as well as for cold-frames or greenhouses. The new mammoth salsify is giving us roots almost like parsnips, and they are as great an improvement in quality as in size.

Burpee has also given us a mammoth crookneck squash that seems to be equal in every respect to the common crookneck, but it is ever so much larger. Now, where we get hold of a variety that is without question superior to the old one, as in the case of the summer crook-neck squash, etc., why not drop the old ones entirely? I know by experience that we want to be a little careful about deciding hastily; for on further trial the improved variety sometimes proves to be lacking in earliness, in quality, or in some other respect. But where the new variety proves to be in all respects su-

perior, I would drop the old one entirely. So far as I know, the Japanese buckwheat is an illustration in point. It is so much ahead of all our old varieties in every respect that there is no longer any need of sowing or offering for sale any of the old kinds. We are going to undertake this in our catalogue, for we can not have it cumbered with a great number of varieties where one or two answer every purpose for at least the great mass of the people.

AN INDESTRUCTIBLE LABEL FOR PLANTS AND TREES.

Simple as it may seem, it has long been a difficult matter to get just what we want for this purpose. In our book we have recommended having seed-packets printed on stout water-proof paper, and tacking this paper to a stout pine stake. Several times, however, these stakes have been pulled over by the harrow, and dragged in the dirt until even after a careful washing the letters were too much defaced to be read. In my experiments with early pumpkins I had a good deal of trouble in that way. We want a label that can be washed off when it is soiled. We want it to stand frost and rain and mud. Well, our good friends Johnson & Stokes, of Philadelphia, are bringing out something this season that fills the bill. It is made of very thin sheet copper—so thin that you can write on it with any sort of a pencil, and the writing will be indented so as to be easily read. In fact, thin sheets of copper, it seems to me, would answer for a writing that blind people could read. The slips of copper are about 3 inches long, and an inch wide. One end of this is narrowed down and split into two portions that can be easily twisted around a limb or stake. If this gets muddy it can be washed; and if you want to make it as clean as a new dollar, just heat them hot and throw them into water. The writing will still be perfectly plain. The price is the principal objection. They are worth \$1.50 a gross. It seems to me that they should be made for less than half this amount, and probably will be soon.

IMPROVEMENTS IN OUR COMMON VEGETABLES.

We have the following from our Ohio Agricultural Experiment Station. Our friend W. J. Green has given special attention to testing every thing new offered in this line:

We have an experiment in view, in which seed grown in your locality will be useful to us. We wish to secure seed of any or all of the following: Beans, beets, cabbage, cauliflower, celery, corn, cucumber, lettuce, melons, onions, pumpkin, peas, radish, squash, tomato, turnip, also grass, grain, or flower seed of any kind. It is essential that we know the locality where the seed is grown, also that the varieties be correctly named. Only a small quantity of seed is desired, about the same in quantity as seedsmen usually send in packets. If we can get no more than one variety from a locality it will be useful to us. We should like to hear from any one who has seed of any kind, of his own growing.

W. J. GREEN.

Columbus, Ohio.

HOW TO MAKE STRAWBERRIES BEAR IN AUGUST.

In GLEANINGS, Oct. 15, you call on the Experimen-

tal Stations to tell you some way to make the Jessie or some strawberry bear in the fall, when, by calling on your subscribers, I have no doubt you could find plenty who could tell you the secret. If you will select some thrifty plants next spring, and pick out the fruit-stalks before they bloom, and keep all runners cut, you will have the satisfaction of seeing them bloom in August and mature fine fruit. We have a gentleman near this place who sold quite a number of plants because he could raise berries and have them to sell in September.

E. F. BUSICK.

Church Creek, Md., Oct. 23, 1889.

Friend B., you give us something exceedingly valuable. I have often thought of doing as you say, but I could never before find any record of anybody who had done it. Next season we will make a good test of the matter.

HOW TO MAKE SOUR-KRAUT.

In response to information wanted, "How to make and keep sour-kraut," I submit the following *very simple way*: Cut your cabbage up finely, and put about half a bushel of the cut cabbage in the barrel you intend your kraut to stay in; then sprinkle over it as much salt as you can hold in your hand; then with a wooden maul beat it down. Next put in the same quantity of cabbage, using a handful of salt to every half-bushel of cabbage, beating the cabbage down every time you put it in. It takes a good deal of beating. You can tell when it is beaten sufficiently, by the brine rising near the top. When you are done putting all your cabbage in the beating, etc., cut some boards to fit inside the barrel. Put boards on top of the cabbage, and then put a heavy weight on top the boards. Next morning the brine will stand on top. Put your barrel in the cellar or some cool place, and in a few days you will have kraut that will keep all winter and spring. Freezing will not hurt it unless you gouge down in the middle or on one side of the barrel, thus allowing the brine to sink away from the top. As you use your kraut, keep it level on top, and the weight on. When you are making your kraut, if you will peel your cabbage-stalks and throw them into the barrel you will have some nice pickles; and every time mamma goes to get a mess of kraut for dinner, all the children will want a stalk to eat.

G. C. HUGHES.

Pipestem, W. Va.

EGG-PLANTS IN FLORIDA.

I have already 3000 egg-plants out, and they are looking finely. The plants are set out 4 feet each way, and you will be surprised to know that my patch of egg-plant will be good from 3 to 5 years for fruiting, all because we have no killing frost.

Narrows, Fla., Sept. 23, 1889.

S. B. DAWSON.

LIMA BEANS WITH A VENGEANCE, ETC.

We are now having the heaviest rains for October that we have had in 38 years. It has now rained over four inches, doing great injury to beans still unthrashed. There are close on to 2000 tons of limas still in the field. The season starts in good for honey, but nearly all the bee-ranges were burned over in Southern California last month, which will give us a light crop of sage honey, as the sages make no bloom the first year.

S. M. W. EASLEY.

San Buena Ventura, Cal., Oct. 23, 1889.

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, NOV. 15, 1889.

In peace will I both lay me down and sleep:
For thou, Lord, alone makest me dwell in safety.
1 Or, IN SILENCE. PSALM 4: 8, Revised Version.

DEATH OF MRS. CHADDOCK.

As we go to press, the following reaches us:

Mrs. Mahala B. Chaddock died at her home in Vermont Tp., Fulton Co., Ill., at 8 o'clock on the evening of Nov. 12. She had been ill for five weeks, but not dangerously so, until toward the last, when typhoid pneumonia developed and caused death. ANNA B. QUITLIN.

Mrs. Chaddock, by her spicy writings, was well known through these columns; and her sudden death will be lamented by many of our readers.

QUEENS FROM THE SOUTH.

The following queen-breeders from the South agree to furnish untested queens during the winter:

Simon P. Roddy, Mechanicstown, Md., has four nice tested queens which he will sell for \$1.00 each.

I can send out young tested queens during the winter, if wanted. NELLIE ADAMS.
Sorrento, Fla., Oct. 28, 1889.

Untested Italian queens all winter, ready by return mail, at price in Root's catalogue. If sent at buyer's risk, one-half of Root's price. LUTHER W. GRAY.
Orlando, Fla., Nov. 9.

I have about six untested Italian queens which I will send to any address upon receipt of \$1.00 each, by return mail. New Braunfels, Texas, Nov. 9. H. H. P. KOHLENBERG.

I have untested queens now ready to ship. J. P. CALDWELL.
San Marcos, Tex., Nov. 7.

A HONEY ALMANAC.

The Honey Almanac for 1890, published by T. G. Newman & Son, Chicago, Ill., is now out. It contains 32 pages of facts, figures, and suggestions, for honey in its various uses, besides the matter usually contained in almanacs. A very large number of honey recipes for cooking are compiled. The varied uses of honey as a food and medicine are also discussed. The design of this almanac is to place in the hands of bee-keepers a lever by which they can revolutionize public sentiment, and create a market for honey. Sensational stories in regard to adulterated honey are refuted. The following is a pithy paragraph which sums up the whole story:

THERE IS NO ARTIFICIAL COMB HONEY.

"Combs made of paraffine, filled with glucose, and sealed over by machinery made for that purpose"—is a mere fabrication! A LIE! That story was started by Prof. Wiley, in an article for the Popular Science Monthly which he says was intended simply as a "scientific pleasantry." He expresses surprise that any one should ever have taken it for a sober fact. It was intended for a "huge joke," but the newspapers have been deceiving the public by asserting that it is truth. Several years ago, Mr. A. I. Root, of Medina, O., offered a thousand dollars for proof of the existence of such a factory, and to see such artificial comb made. He has never had an application for the money—good proof that there is no such thing.

FATHER LANGSTROTH.

The following editorial from the *American Bee Journal* of Nov. 2, we take pleasure in presenting to our readers. It contains a bit of news in regard to our much-respected friend, and some cheering words from the editor that are well worth repeating. It is as follows:—

The Northwestern Bee-Keepers' Society at its last session voted to empty its treasury into the

pocket of our venerable friend father Langstroth. Accordingly, being the treasurer, we sent him a check for the amount, \$12.25, together with another small amount sent to us by one of our subscribers for that purpose. The following is the response from Mrs. A. L. Cowan, his daughter.

Mr. THOMAS G. NEWMAN:—My father is deeply grateful to the bee-keepers for their remembrance of him. He is still sad and feeble, and I appreciate highly every kind act which lightens for a time the clouds which surround him—by the knowledge that his labors are not forgotten.

My father sends his kind greetings to you and to your family. We are grieved to learn of Mrs. Newman's illness. I have suffered so often from the same terrible disease (erysipelas), that I know how to sympathize with her. With best wishes for her speedy recovery. Respectfully,

Dayton, O., Oct. 22, 1889.

ANNA L. COWAN.

"Sad and feeble"—how these words send gloom to our hearts! Has that kind face, genial smile, and sweet voice, given place to sadness, because of the feebleness and natural decline of the physical system? Be not sad, noble brother. Though "weeping may endure for a night, joy cometh in the morning!" Cheer up, and remember Him who says, "When thou passest through the waters, I will be with thee." With eyes fixed on him to guide through the deep waters, and through the pearly gates, we hope with you soon to be made "living stones in that temple not made with hands, eternal in the heavens"—where "no discordant voice shall e'er be heard, and all that we experience will be perfect bliss, and all we express will be perfect praise," and where "love divine will ennoble every heart, and hallelujahs exalted employ every tongue."

MEMBERSHIP TO THE N. A. B. K. A.; AN INTERNATIONAL BEE-ASSOCIATION AT THE WORLD'S FAIR IN 1892.

A LETTER just received from Secretary Holtermann will explain itself. It reads as follows:

FRIEND ROOT:—I should like to see the International American Bee-keepers' Association what it should be; and it should have, in its treasury, funds to defray the expenses of an international convention at no distant date, say during the World's Fair in New York, 1892. As I have before said, who knows the grand results which may be secured from a convention of bee-keepers of the World? To do this we must commence at once; and I propose that every one who can, shall send one dollar as membership fee to the International for the coming year; and, as far as I am concerned, if the surplus be voted to me for the work of the past year, I will turn it over to the treasurer, to remain as funds of the association. Surely very many will be found who will indorse this scheme, or something like it, and send their dollar. We should no longer have an empty treasury. R. F. HOLTERMANN.
Romney, Ont., Nov. 1, 1889.

We most heartily indorse what friend Holtermann says. It has been said several times, and with some truth too, that the N. A. B. K. A. in its meetings is largely a local affair. If we can not secure the attendance of representative bee-keepers from all parts of the United States, let those who are interested in the success of the Association send in their one-dollar membership fees. The programme as announced elsewhere in these columns promises to be interesting, and friend Holtermann has left no stone unturned to make the meeting a success. In regard to the international at the World's Fair, we feel sure that we ought to begin to think somewhat of the matter. We want an exhibit at that fair which will be a credit to our industry in this country. We also want an international convention, international in name and international in reality. It will be a fine thing if French, German, English, Italian, Spanish, and American bee-keepers (and that includes Canadians too) could rub against each other in one grand brotherhood of representative world's bee-keepers. We should like to hear what our European cotemporaries think of the matter.

Since writing the foregoing, the following, from the pen of the president of the association, has come to hand:

FRIEND ROOT:—Please say in next GLEANINGS that several in Canada and the United States have suggested to me that it would be a good plan to request those who attend the convention at Brantford next month to take along with them samples of both comb and extracted honey, say one or two

pounds, so that we may see and taste honey from different parts of America. Those not in attendance, and so desiring, could send theirs to the convention (care of the secretary, charges paid), each package marked, kind of honey, price in their market, and owner's name. The convention could appoint judges if they thought best. I like the idea myself, and will second the motion." A. B. MASON, Pres.
Auburndale, Ohio, Nov. 7, 1889.

The idea is a good one, and we will second the motion; and we feel sure that every other member will do so by bringing along with him samples of honey produced in his locality. We should like to have some of the convention test some of the nice alfalfa honey mentioned elsewhere. We hope that friend Ball, or some other bee-keeper of that irrigated district, will favor the convention with their presence, or at least with samples of their beautiful honey.

SPECIAL NOTICES.

DISCOUNT FOR EARLY ORDERS.

Those who expect to take advantage of a discount for ordering during our dull months will find, by referring to our discount notice on the inside of the cover, that the discount during this month is 4%, and on Dec. 1st it drops to 3%. Order during the next two weeks if you would secure the extra 1%.

EXTRACTED HONEY WANTED.

We have met with an unexpected outlet for our stock of extracted honey, and we should be pleased to receive samples from those who have a choice article of basswood or clover to sell or exchange for supplies. When you send a sample, write how much you have and how it is put up, and what you will take for it. By doing this we can give it one free notice in the Honey Column, if we can not use it ourselves.

PREMIUM LIST.

We call our readers' attention to our large premium list in this number. If by chance it slips out and you fail to get it, or if you lose it, be sure to let us know, so that we send you another. We would advise you to keep it in a safe place, for reference. Besides the many bargains we offer you, you may do well to look over the advertisements in the front and back, and see if you do not find something there to your advantage.

EXTRA QUANTITY OF THIS NUMBER.

We use, in printing this number and the premium list, about 70,000 white sheets of paper, 21 x 27 inches, besides the covers, of other colors. This is over three times the amount used in a regular issue. We print an extra number, to be distributed as sample copies, and therefore this will be read by some who may never have seen GLEANINGS before. We ask you to read the number carefully in all its departments, and see if it would not be a good investment of \$1.00 to have such a magazine come into your home twice a month for one year; 24 numbers, or about 4 cents each. Send your subscription, and try it a year.

ODD BUT TRUE.

Send me the names of 10 regular subscribers to the American Agriculturist, or Ladies' Home Journal, and I will give you next season your choice of the following: 1 untested Italian queen, 13 Laced Wyandotte eggs, 13 B. Leghorn eggs, or 10 S. S. Hamburg eggs. All I want is the names of 10 persons who take either of the papers. Write for catalogue of nearly 2000 papers at reduced rates.

C. M. GOODSPEED, Thorn Hill, N. Y.

(Persons responding to this advertisement mention GLEANINGS.)

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 6 lines, and you must say you want your ad in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars. CHAS. DADANT & SON, 187fdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange improved Hammononton Incubator, capacity 240 eggs, new, for honey or offers. A bargain. FINIS A. WOOTTON, 20-21d Skilesville, Muhlenberg Co., Ky.

WANTED.—To exchange a Barnes foot-power saw and Pelham fdn. mill, for extracted honey. Both saw and mill are as good as new. 22d R. H. CAMPBELL, Madison, Morgan Co., Ga.

WANTED.—To exchange No. 1 sections for extracted honey or beeswax. M. H. HUNT, 22-23 Bell Branch, Mich.

WANTED.—To exchange Japanese buckwheat, \$1.25 per bushel, for Eddy drill or offers. 22d F. C. FULLER, Montague, Mass.

WANTED.—A Given foundation-press in exchange for hives, foundation, or supplies. Press for L. frame. O. F. SUNDERLAND, 22d Box 411, St. Albans, Franklin Co., Vt.

WANTED.—To exchange fine P. Rock cockerels, also comb and extracted honey, for bee-supplies or offers. H. A. HUBBARD, New Lisbon, N. Y.

WANTED.—To exchange a Perfect Hatcher incubator, capacity 750 eggs, Japanese buckwheat, and Kafir corn, for honey. CHAS. D. DUVAL, 22-23d Spencerville, Montgomery Co., Md.

WANTED.—To exchange a 24-inch Kaestner feed-mill for small planer, V-groove section machine (Root's), or offers. GEO. RALL, 22-23 Frenchville, Wis.

WANTED.—To exchange 200 colonies of bees, 2 foot-power saws, and one foundation-mill and tanks, for any thing useful on plantation. 22fdb ANTHONY OPP, Helena, Ark.

NOW IS THE TIME FOR MARKETING HONEY, AND NEW YORK IS A GOOD MARKET.

We make liberal advances in CASH on consignments, sell quickly at highest obtainable market prices, and pay the net proceeds

IMMEDIATELY after honey has been sold. We charge for commission and GUARANTEE of payment, five per cent. Ship by freight to

F. G. STROHMEYER & CO.,
WHOLESALE HONEY MERCHANTS,
122 WATER STREET, NEW YORK.

Engines & Boilers.

Complete Outfit, or
Engine Alone.

The Best and Most Sub-
stantial Engine Made.

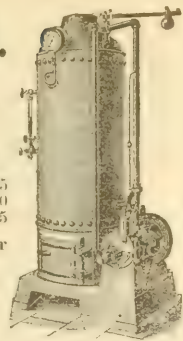
2 Horse Engine and Boiler, \$125
4 " " " " " 200
10 " " " " " 325

Fully guaranteed. Send for
circular. Mention this paper.

MEDINA ENGINE CO.,

20tfdb Medina, Ohio.

In responding to this advertisement mention GLEANINGS.



BEE-HIVES, SECTIONS, ETC.

WE make the best Bee-Hives, Shipping-Crates, Sections, etc., in the world, and sell them the cheapest. We are offering our choicest white one-piece 4 1/4 x 4 1/4 sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, should write for special prices. No. 2 sections, \$2.00 per 1000. Catalogues free, but sent only when ordered. Itfdb

G. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS.

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to
Bee-Keepers." (Mention Gleanings.) Itfdb

TAKE NOTICE!

BEFORE placing your Orders for SUPPLIES,
write for prices on One-Piece Basswood Sec-
tions, Bee-Hives, Shipping-Crates, Frames, Foun-
dation, Smokers, etc. Address

R. H. SCHMIDT & CO.,

21-20db NEW LONDON, Waupaca Co., WIS.

In responding to this advertisement mention GLEANINGS.



Gloves for Ladies.

"about gloves," giving full description, with prices of over fifty patterns, simple guide for self-measurement; thus enabling you to order by mail as safely as if measured in our store and as perfect fit and satisfaction are guaranteed

GLOVES DIRECT TO YOU

I have decided to place my gloves (the best made) within the reach of every purchaser, no matter where he or she may live. You purchase direct

FROM THE MANUFACTURER,

get better gloves and save money. My gloves are made from selected skins suitable for different grades of service and are made with the best skill by the most experienced operators. They are perfect in style and fit and the most serviceable gloves that can be made. They are warranted and if not as represented you can return them and receive back your money. A splendid holiday, birthday, wedding or complimentary present.

27 YEARS BEFORE the PUBLIC.

I offer my gloves for Ladies and Gentlemen, with assorted colors, real dog skin, kid, cheverette, and fur. Send stamp for illustrated book



YOU TAKE NO RISKS.

Refer to Johnstown Bank, American Express Co., or Postmaster, all of Johnstown, or Commercial Agencies.

JOHN C. HUTCHINSON,
— JOHNSTOWN, N. Y. —

GLOVES FOR STREET WEAR.



OBSERVE. I send a good glove measure **FREE** of charge with above book to those who mention this paper when writing.

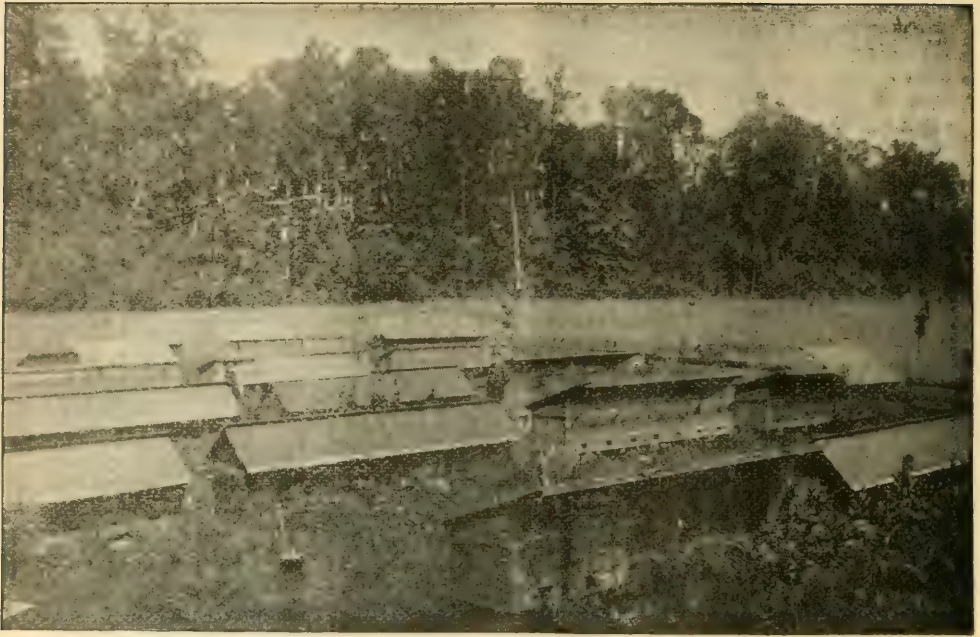
SUPPLEMENT.

PICTURE GALLERY OF GLEANINGS IN BEE CULTURE.

DURING the 17 years in which GLEANINGS has been published, a large number of fine engravings of apiaries and bee and honey exhibits have been presented to the readers. They were executed at considerable cost, and are also suggestive of many ideas with regard to apiaries and apiarian exhibits. Those of the better sort we take great pleasure in presenting to our readers again, in the shape of a souvenir, and we trust it will be appreciated. Our list is double, and in some instances perhaps three times the size it was when the pictures originally appeared, and hence to the majority of our readers they will be new. Perhaps we should remark, that these engravings will appear in the A B C of Bee Culture, just after the biographical sketches. The two together will give an excellent idea of prominent apiarists, and of their apiaries: of prominent honey-men and of their honey-exhibits, from all parts of the world. While it is not possible, by reason of space, to give descriptive reading-matter for each, we have indicated the page and volume in which full details can be found. If you do not happen to have the required back number, describing a certain exhibit or apiary, send 10 cts., and we will mail you the desired number.



A. E. MANUM'S SIDE-HILL APIARY; SEE GLEANINGS, PAGE 665, VOL. XVII.



C. J. HETHERINGTON'S BEE-RANCH, NEAR EAST SAGINAW, MICH.; SEE GLEANINGS,
PAGE 840, VOL. XVI.



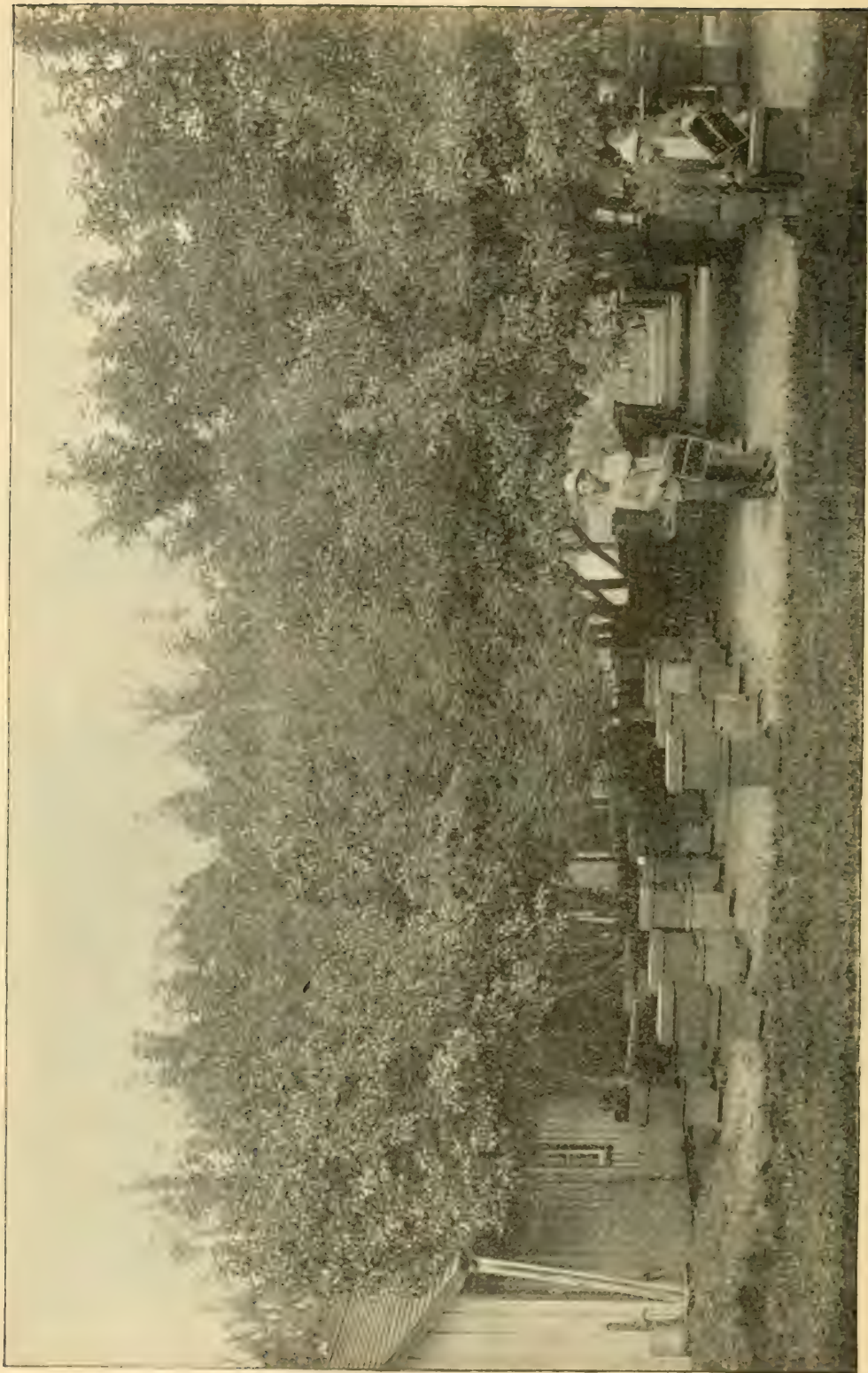
A. E. MANUM AND HIS HELPERS IN HIS BEE-YARDS; SEE GLEANINGS, PAGE 665,
VOL. XVII.



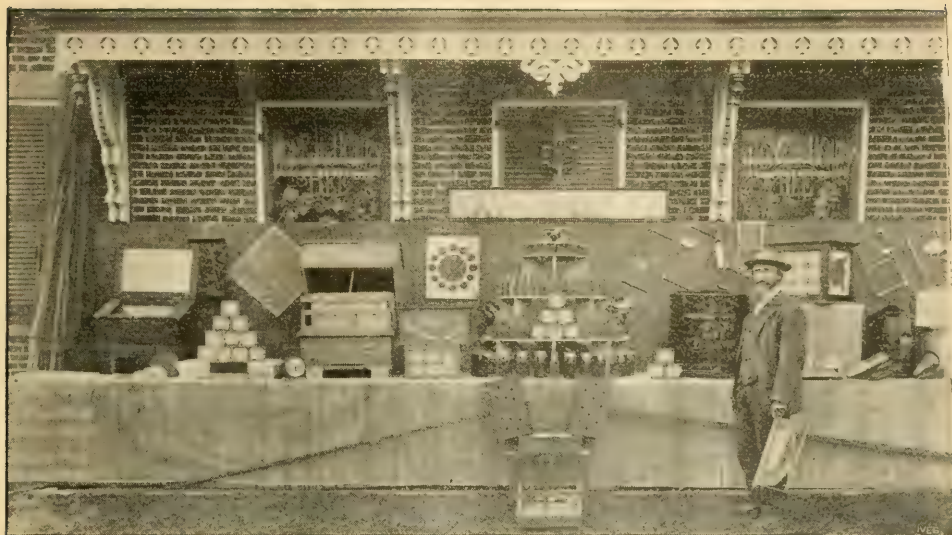
M. H. HUNT'S CHAFF-HIVE APIARY, BELL BRANCH, MICH.; SEE GLEANINGS, PAGE 625,
VOL. XVII.



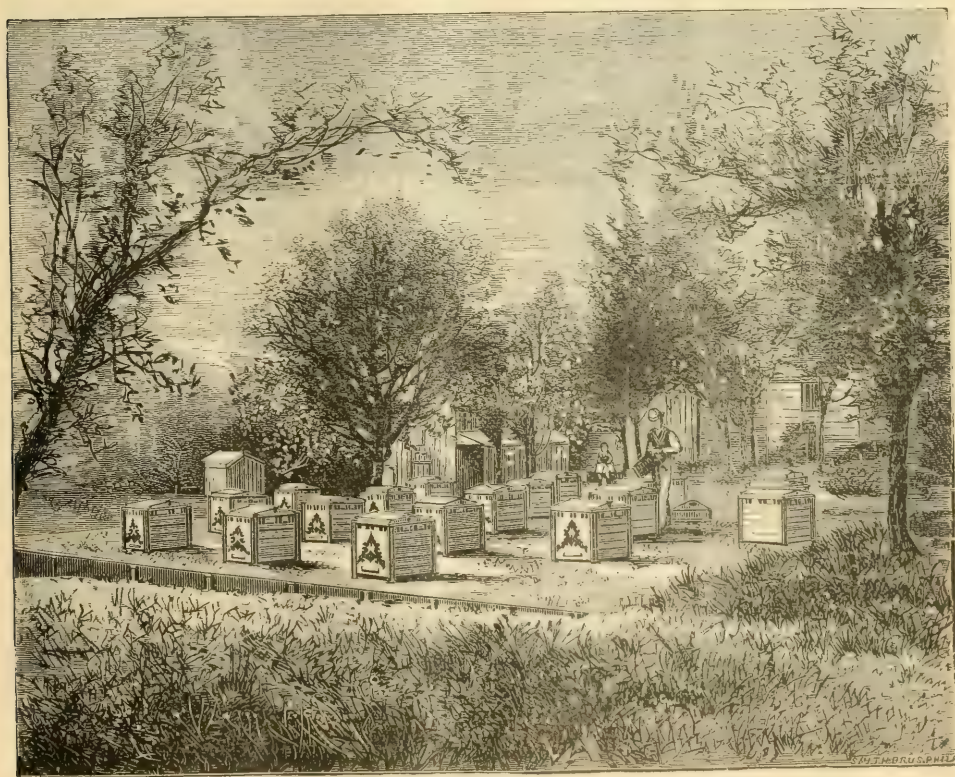
CAPT. J. E. HETHERINGTON'S HOME, CHERRY VALLEY, N. Y., WITH LOAD OF 32 COLONIES
IN THE FOREGROUND.



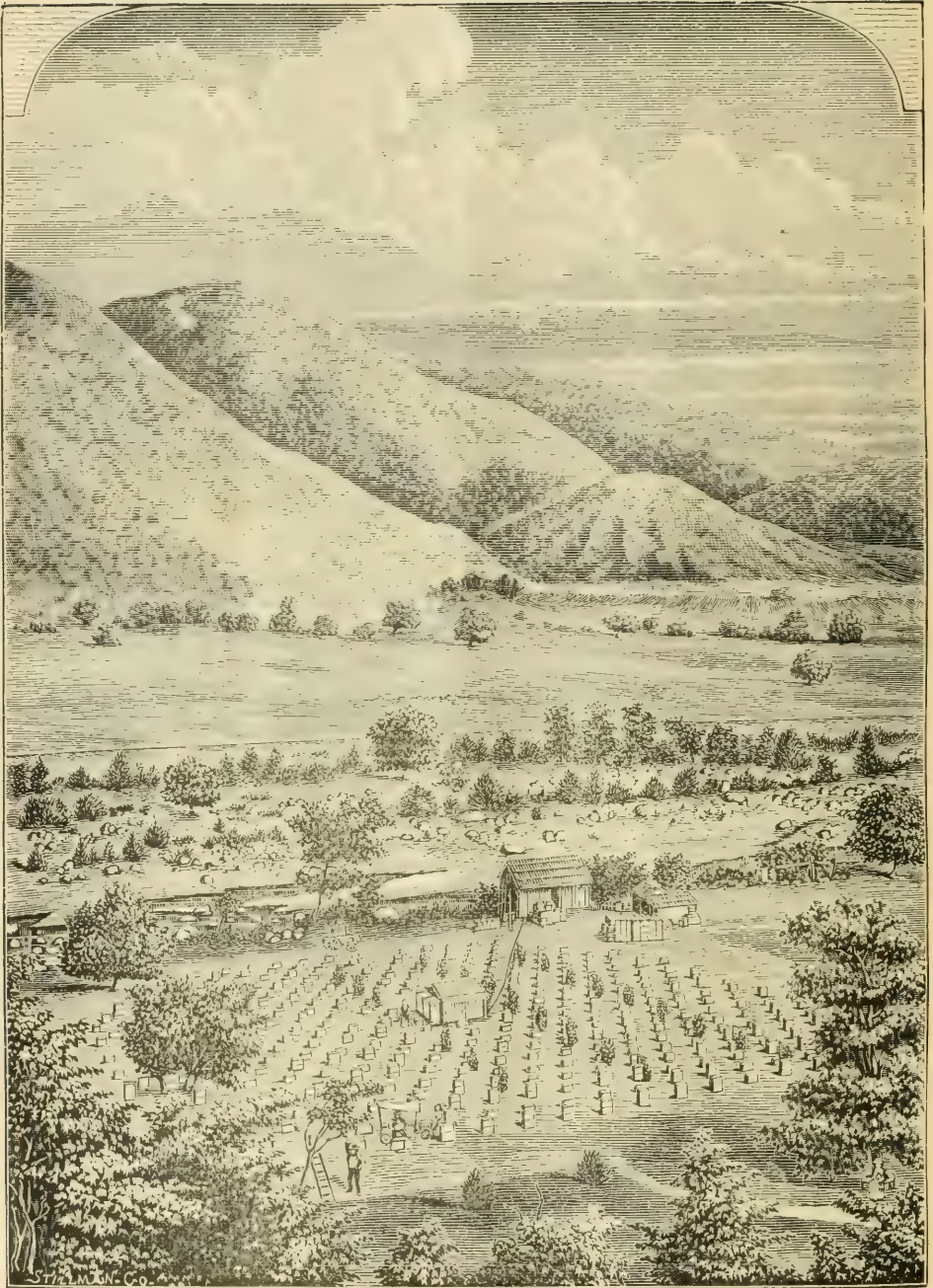
APIARY OF H. R. BOARDMAN, EAST TOWNSEND, OHIO; SEE CLEANINGS, PAGE 882, VOL. XVII.



J. W. NIMAN'S EXHIBIT, SPRING MILL, O. ; SEE GLEANINGS, PAGE 122, VOL. XVII.



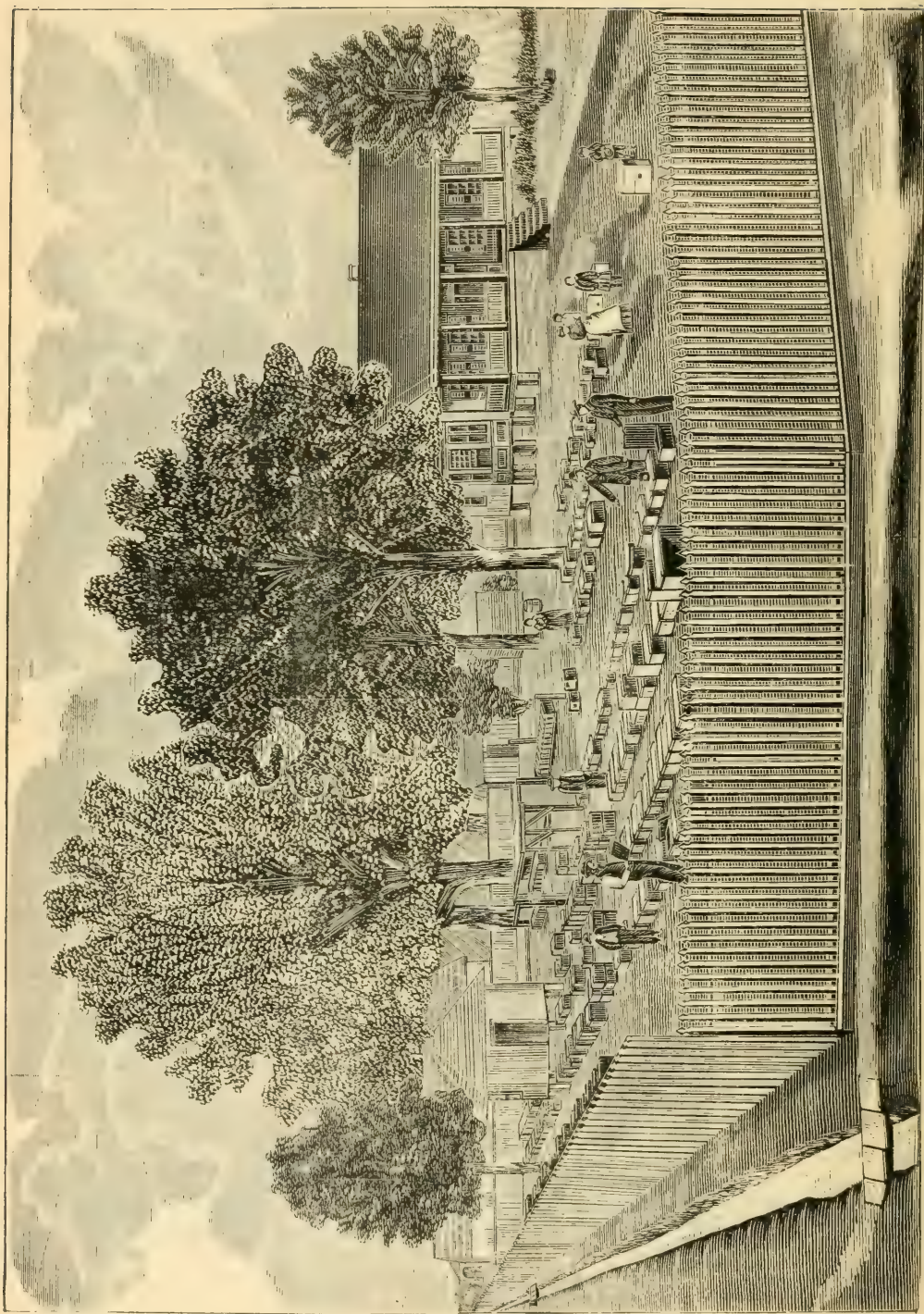
HEXAGONAL LAWN-HIVE APIARY OF NINETEEN HIVES, BELONGING TO N. H. ALLEN, KIRKWOOD, MO. ; SEE GLEANINGS, P. 373, VOL. VIII.



R. WILKIN'S HEXAGONAL APIARY, SAN BUENAVENTURA, CAL. ; SEE GLEANINGS, P. 340, VOL. VII.



APIARY OF THE LATE WM. RAITT, BLAIRGOWRIE, SCOTLAND : SEE GLEANINGS, PAGE 179, VOL. IX.



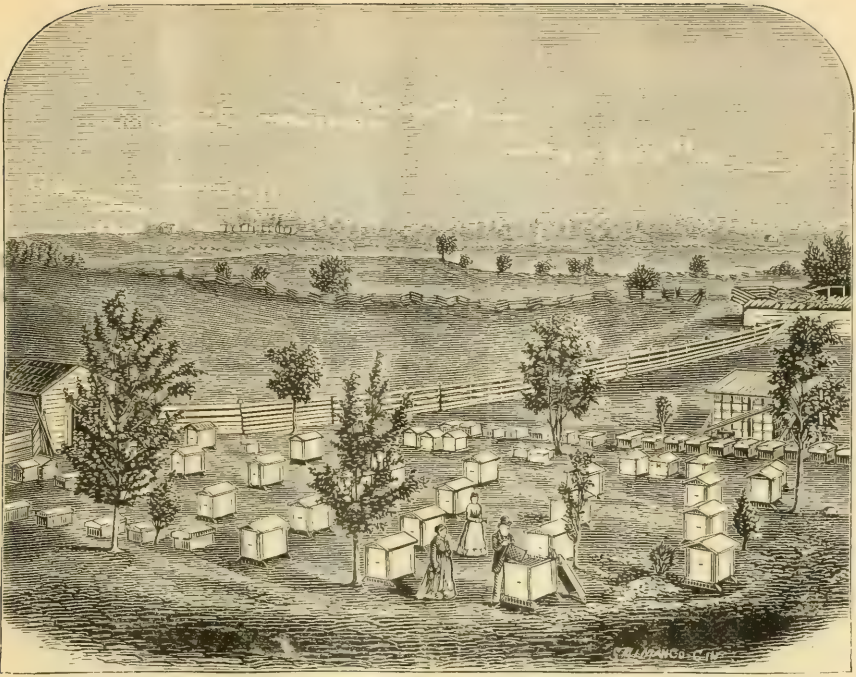
P. L. VIALON'S APIARY, FROM A PHOTOGRAPH TAKEN IN 1883 ; SEE GLEANINGS, PAGE 435, VOL. XI.



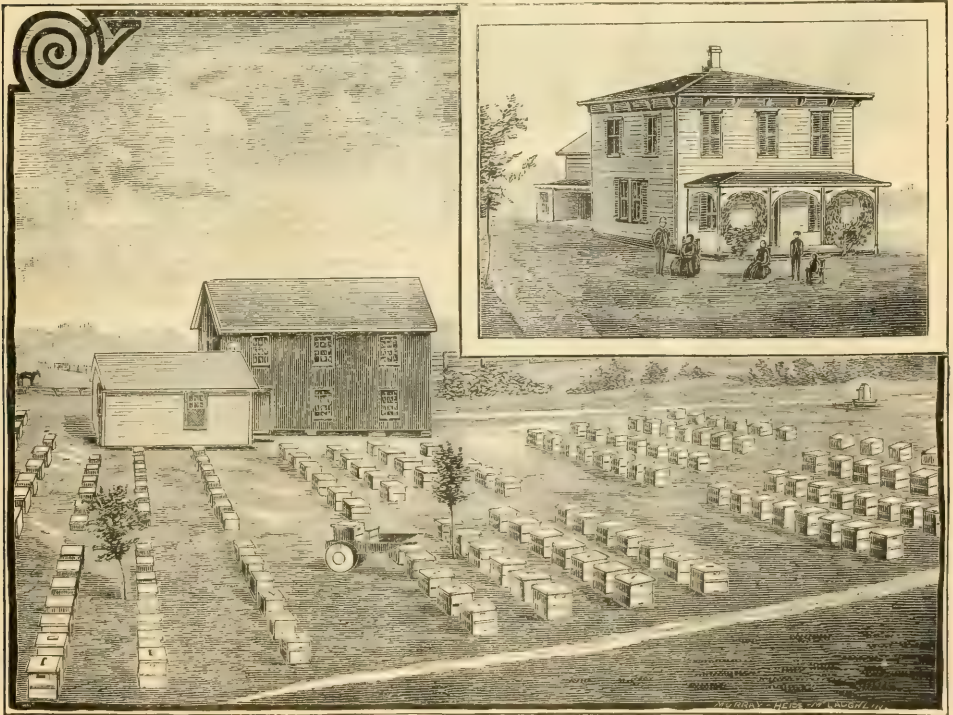
RAILROAD APIARY BELONGING TO M. A. WILLIAMS & CO., BERKSHIRE, N. Y.; SEE
GLEANINGS, PAGE 533, VOL. X.



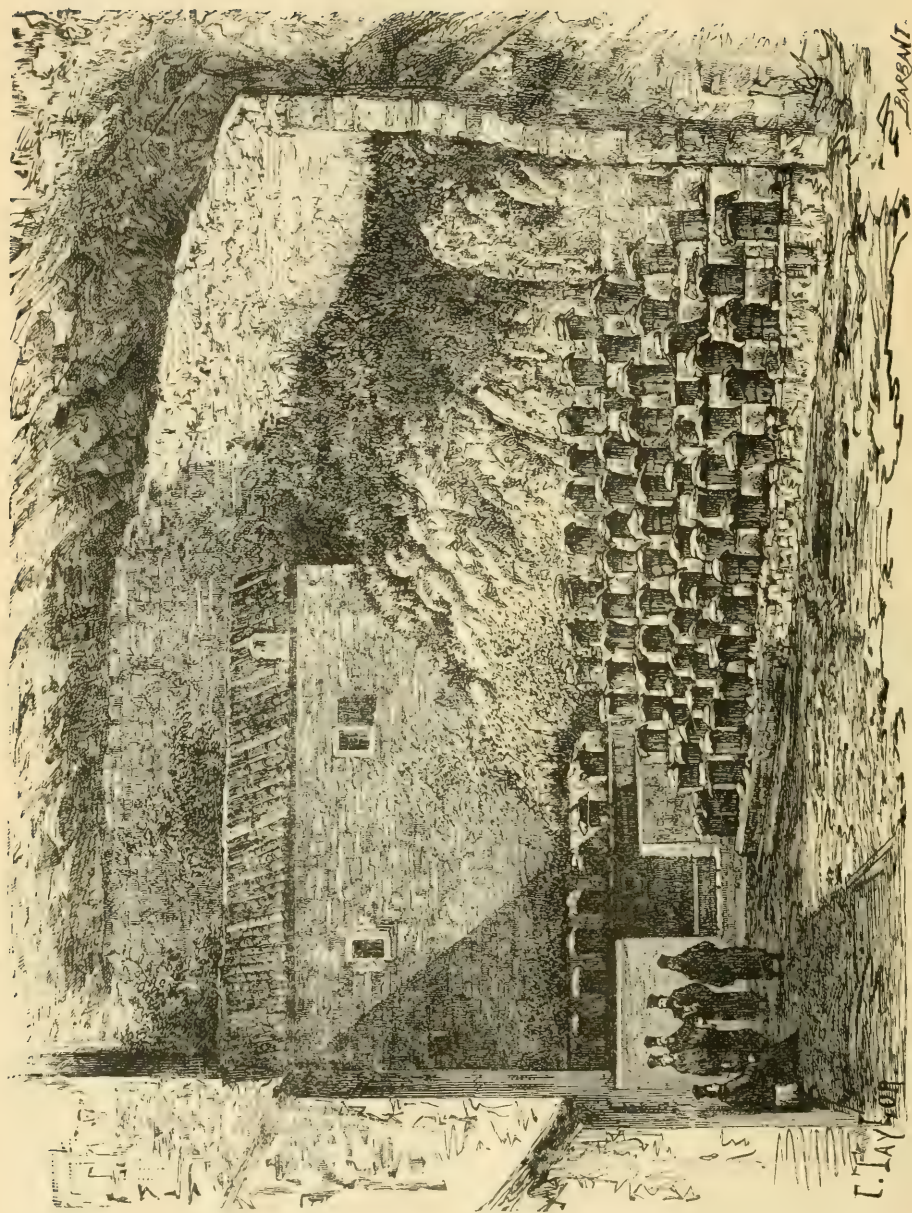
APIARY OF W. H. SHIRLEY, GLENWOOD, MICH.; SEE GLEANINGS, P. 561, VOL. XI.



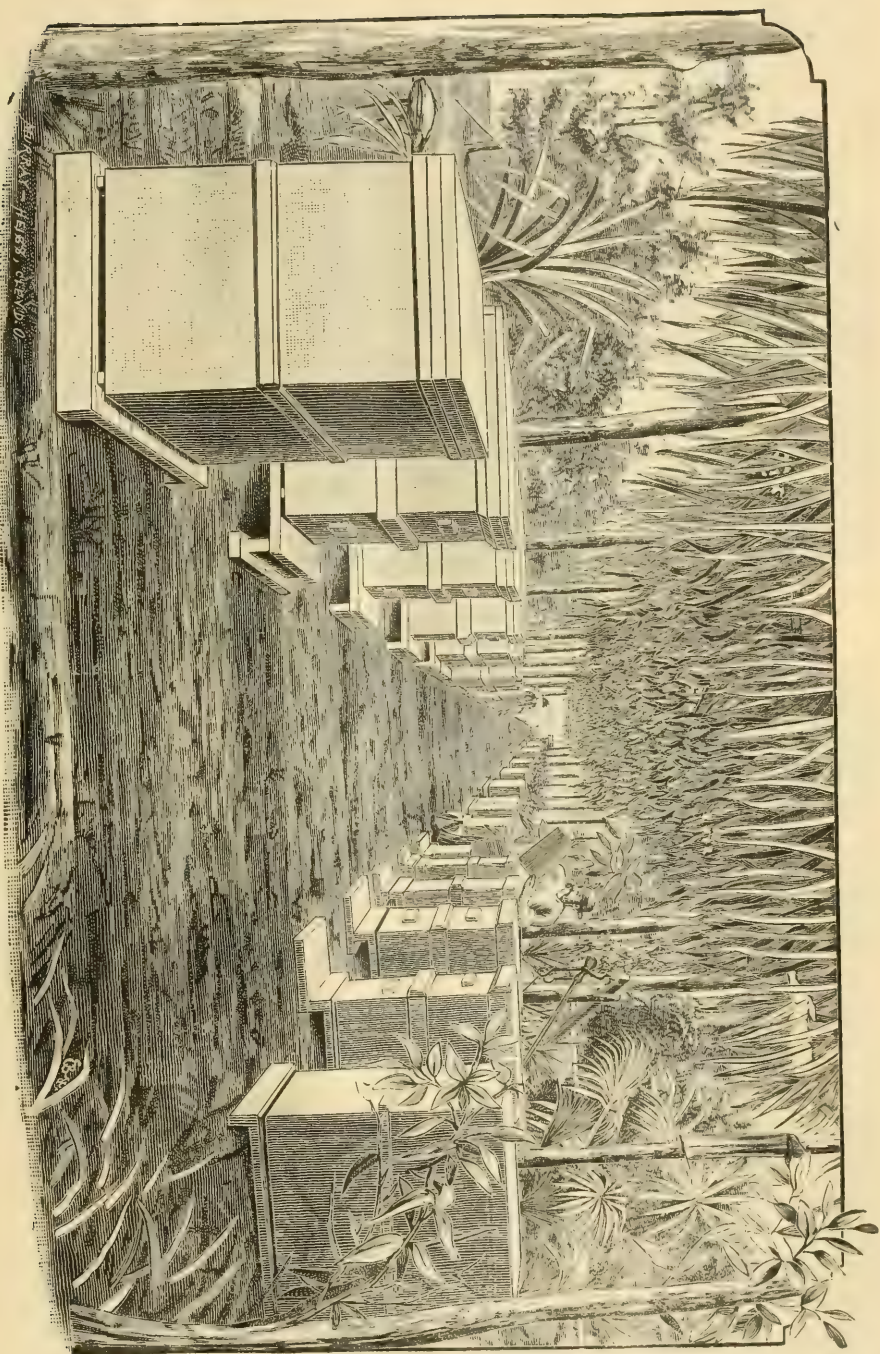
CHAFF-HIVE APIARY OF J. H. TOWNLEY, TOMPKINS, MICH. : SEE GLEANINGS, PAGE 194, VOL. VI.



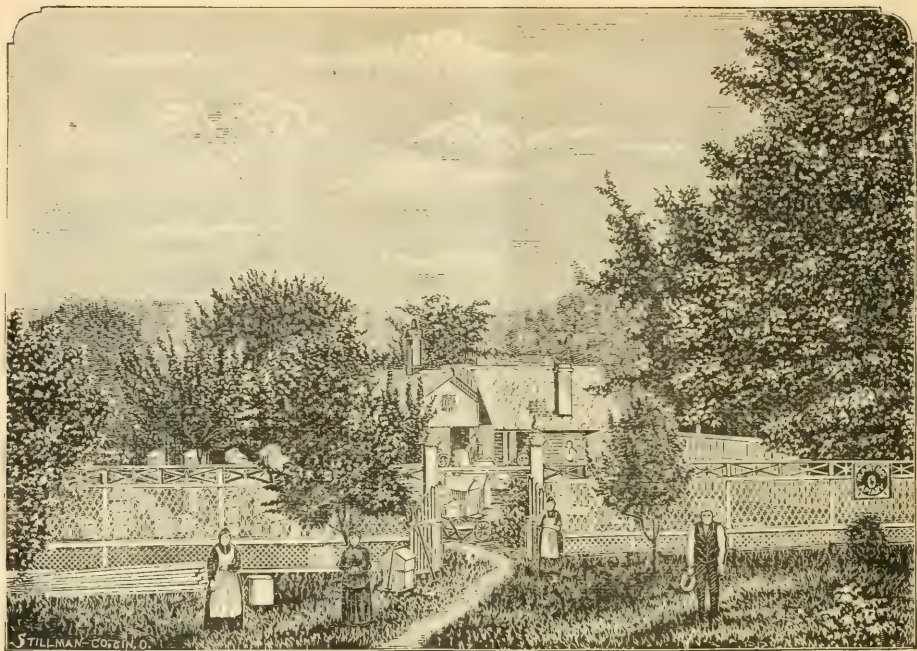
T. P. ANDREWS' APIARY, FARINA, ILL. : SEE GLEANINGS, P. 14, VOL. XV.



AN APIARY IN CETIGNE. MONTENEGRO, TURKEY; SEE GLEANINGS, PAGE 595, VOL. X.



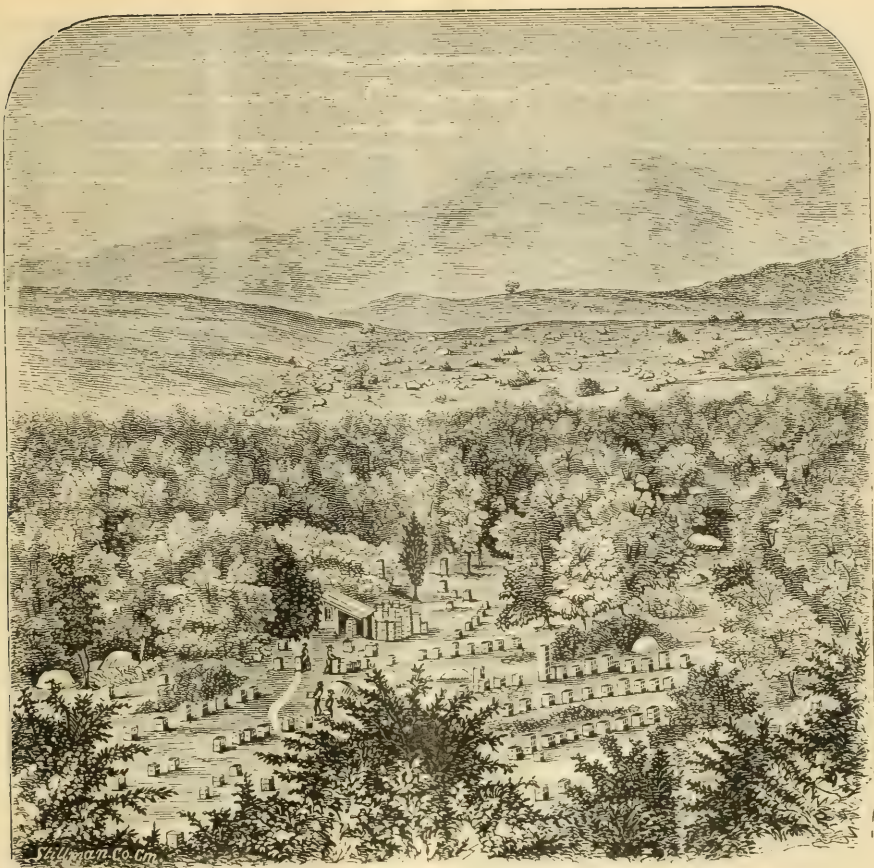
W. S. HART'S APIARY, NEW SMYRNA, FLORIDA; SEE GLEANINGS, P. 534, VOL. XII.



J. H. MARTIN'S APIARY, HARTFORD, N. Y.: SEE GLEANINGS, P. 424, VOL. VIII.



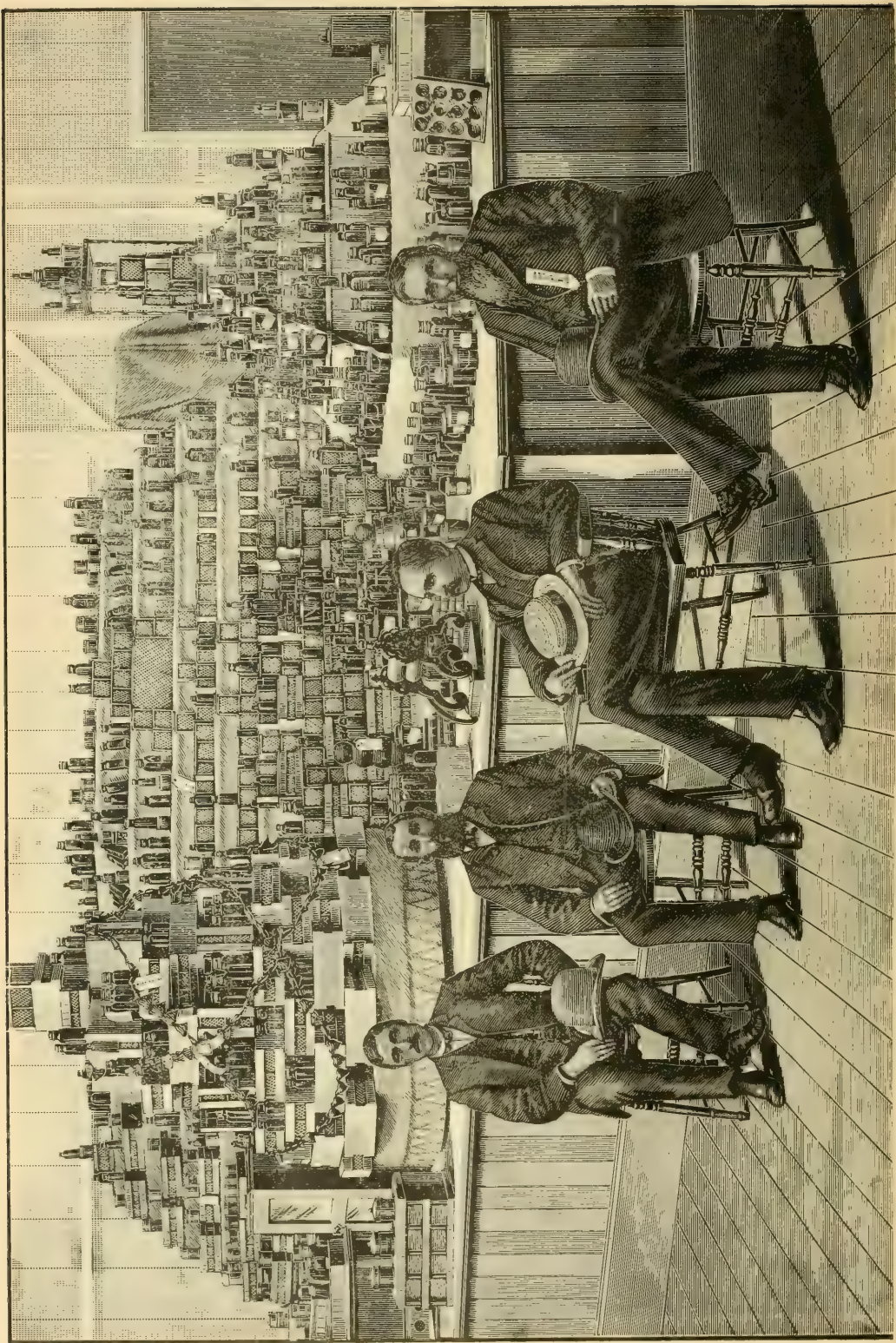
APIARIST AT WORK AT THE HOME OF THE HONEY-BEES: SEE FRONTISPIECE; ALSO GLEANINGS, PAGE 30, VOL. XV.



J. ARCHER'S BEE-RANCHE, SANTA BARBARA, CAL.; SEE GLEANINGS, P. 113, VOL. VI.



O. M. BLANTON'S APIARY, GREENVILLE, MISS.; SEE GLEANINGS, PAGE 341, VOL. XIII.



HONEY-EXHIBIT AT THE TRI-STATE FAIR IN 1887, AT TOLEDO, O., WITH DR. A. B. MASON AND W. Z. HUTCHINSON IN THE FOREGROUND AT THE RIGHT; SEE GLEANINGS, PAGE 432, VOL. XVI.

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HOME EMPLOYMENT.—A GENTS wanted every where, for the HOME JOURNAL—a grand family paper at \$1 a year. *Big cash premiums.* Sample FREE. THOS. G. NEWMAN & SON, 923 & 925 West Madison Street, - CHICAGO, ILLS.
In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

BEFORE placing your Orders for **SUPPLIES**, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. Address

R. H. SCHMIDT & CO.,
21-20db NEW LONDON, Waupaca Co., WIS.

In responding to this advertisement mention GLEANINGS.

RERUM COGNOSCERE CAUSAS,

TO know the Causes of Things, is the key to Success in any industry. If you wish to succeed in the **Bee Business**, you must read and become acquainted with the most Successful Methods of Bee-Management and Honey-Production.

LANGSTROTH'S WORK,

REVISED BY DADANT,

Contains the result of practical experience with Bees. It gives the Physiology of the Bee, with numerous **Quotations** from the latest Scientific Writers, the Description of the **best Hives**, Directions for the Proper Management and Handling of Bees; the most **Practical Methods of Queen-Rearing, Swarming** (Natural and Artificial), with controlling methods; instructions on Establishing Apiaries, Transferring, Shipping, Mailing, Feeding, Wintering; the best methods of producing **Comb and Extracted Honey**, the Handling and Harvesting of Honey, the Making of Comb Foundation, etc., etc.

The instructions for the **Rendering of Beeswax** are alone worth the price of the Book, to many bee-keepers who waste a part of their wax in rendering it.

This book, "the most complete ever published," is shortly to be published in the French, Italian, and German Languages, by Practical European Apiarists. It is highly recommended by all publishers of Bee-Literature in the Old World as well as in the New.

Cloth Binding, 550 Pages, 199 Engravings, 19 Full-Page Plates. Gilt front and back. This book is an Ornament to any Library.

Price: By Express, \$1.85. By mail, prepaid, \$2.00. Special prices to Dealers who wish to advertise it in their circulars.

We also offer for Sale, **20,000 Lbs. of Honey**, of our crop of 1889; **25 Tons of Comb Foundation**, Smokers, Bee-Veils of Imported Material, etc. Send for Circular. Address

CHAS. DADANT & SON,
3tfdb Hamilton, Hancock Co., Illinois

In responding to this advertisement mention GLEANINGS.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND SAVE FREIGHT.

We carry a complete stock of Apian Supplies. Our motto: Good goods and low prices. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO., Higginsville, Mo.

In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

We are now selling our No. 1 V-groove sections, in lots of 500, at \$3.00 per 1000; No. 2 sections at \$2.00 per 1000. For price of Italian queens, foundation, smokers, etc., send for price list.

J. STAUFFER & SONS,
Successors to B. J. Miller & Co.,

16tfdb Nappanee, Ind.

In responding to this advertisement mention GLEANINGS.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. In this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars.
CHAS. DADANT & SON,
18tfdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange a 24-inch Kaestner feed-mill for small planer, V-groove section machine (Root's), or offers.
GEO. RALL,
22-23 Frenchville, Wis.

WANTED.—To exchange 200 colonies of bees, 2 foot-power saws, and one foundation-mill and tanks, for any thing useful on plantation. 22tfdb
ANTHONY OPP, Helena, Ark.

WANTED.—To exchange No. 1 sections for extracted honey or beeswax. M. H. HUNT,
22-23 Bell Branch, Mich.

WANTED.—To exchange a Barnes combined foot-power saw, for extracted honey. A good machine, cheap, used but little; cost \$35.00; price now, \$18.00. Please write at once.
GEO. BREDE, Sandwich, N. H.

WANTED.—To exchange a Perfect Hatcher incubator, capacity 750 eggs, Japanese buckwheat, and Kafir corn, for honey. CHAS. D. DUVAL,
22-23d Spencerville, Montgomery Co., Md.

WANTED.—To exchange two saw-tables designed for making dovetailed sections, for sections.
W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange Japanese buckwheat at 75c per bushel, or No. 1 sections, for extracted honey.
W. D. SOPER, Jackson, Mich.

WANTED.—To exchange a fine-blooded stallion for Italian bees. Will take a quantity of sections and foundation. A bargain for somebody.
J. H. JOHNSTON, Leclair, Iowa.

WANTED.—To exchange complete photograph outfit, for Barnes foot-power saw.
F. SHILLING, Jewett, Harrison Co., Ohio.

WANTED.—To exchange wood-engraving tools for carving-tools.
E. V. WHITTLESY,
Pecatonica, Winnebago Co., Ill.

WANTED.—To exchange a new foot-power saw for extracted white-clover or basswood honey.
23d W. S. WRIGHT, Battle Creek, Mich.

WANTED.—To exchange, Barnes foot-power buzz saw, latest pattern, one Parker Bros. shotgun, B. L., new, for type-writer or any thing can use in family.
ADOLPHUS NEWTON,
Box 911, Norwich, Chenango Co., N. Y.

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—Honey.—There is a large amount of comb honey on our market. Sales have been slow lately and prices are easier. It is held at 14¢ for best white in the jobbing way. Extracted honey brings 7¢ on arrival. *Beeswax.*—Demand is good at 20¢ for good to choice yellow on arrival.

CHAS. F. MCETH & SON,
Cincinnati, Ohio.

Nov. 22.

KANSAS CITY.—Honey.—Honey is selling very slow, especially extracted. We attribute the cause some to the mild weather. We quote: 1 lb., white comb at 13¢ 14; 1 lb., dark, 10¢ 12; 2 lb., white, 12¢ 13; 2 lb., dark, 10¢ 11. Extracted, white, 7¢ 8. *Beeswax*, 22¢.

CLEMONS, CLOON & CO.,
Kansas City, Mo.

Nov. 22.

BOSTON.—Honey.—Honey is selling a little slow. Fancy white one-pound combs jobbing, 16¢ 17¢; common, 15¢ 16; extracted, 8¢ 9. *Beeswax*, 24¢.

BLAKE & RIPLEY,

Nov. 27.

57 Chatham St., Boston, Mass.

ST. LOUIS.—Honey.—Market steady. Better inquiry. Comb, 12½¢ 14 for choice; 8¢ 10 for inferior. Choice extracted, 5¼¢ 6; dark, 5¢ 5½. *Beeswax.*—Prime, 22¢.

D. G. TUTT GROCER CO.,
St. Louis, Mo.

Nov. 22.

ALBANY.—Honey.—The market is slow and weak. White clover, 13¢ 14; mixed, 11¢ 12; buckwheat, 9¢ 11. Extracted, light, 8; dark, 6.

Nov. 22.

H. R. WRIGHT, Albany, N. Y.

DETROIT.—Honey.—White comb honey in fair demand at 13¢ 15¢. Fall made, 12¢ 13. *Beeswax*, 24¢ 25.

Nov. 22.

M. H. HUNT, Bell Branch, Mich.

FOR SALE.—Six 60-lb. square cans, heart's-ease honey, crated. Will take 7½¢ at Hamilton, Caldwell Co., Mo.

C. B. THWING,

Evanston, Cook Co., Ill.

FOR SALE.—Three 60-lb. cans of honey like the sample sent you (fair); I will take \$5.00 per can for it on board the cars in Addison.

THADDEUS FISK, Addison, Lenawee Co., Mich.

FOR SALE.—300 lbs. white-clover and 350 lbs. gold-enrod comb honey at 15¢ and 12½¢ c respectively, put up in 12, 14, and 20 lb. crates. Would exchange some for good extracted honey.

23d

L. J. TRIPP,
Kalamazoo, Kalamazoo Co., Mich.

FOR SALE.—17 kegs of clover honey that hold 15 gallons each, or 177 lbs. each net. I would like to get 8¢ for it here on track, no charge for kegs.

MONT WYRICK, Cascade, Dubuque Co., Iowa.

FOR SALE.—Three barrels of clover honey of about 600 lbs. each, about 1800 lbs., for which I will take 7¢ per lb. here on board cars.

GEORGE W. CAVE, Kirkwood, Warren Co., Ill.

CONVENTION NOTICES.

The next annual meeting of the Vermont Beekeepers' Association will be held at Burlington, Vt., Jan. 22, 1890.

J. H. LARRABEE, Sec'y.

The first annual joint meeting of the bee-keepers of Huron and Tuscola Counties will be held Dec. 15, 1889, at Sebawaing, Huron County, Mich. The committee has secured a fine hall, which will be at our disposal during the convention. The hall is at and in connection with the Union House, and is known as Concordia Hall. We earnestly ask all interested bee-keepers to be present, and help to make this our first convention a success.

J. G. KUNDINGER, Cor. Sec'y.

REDUCED RATES OF TRAVEL TO THE CONVENTION AT BRANTFORD, DEC. 4, 5, AND 6.

Applications for railroad certificates are pouring in, and the prospects are very bright indeed. Our friends in the United States can get reduced rates only on Canadian railways. Upon Canadian Pacific Railway and the Grand Trunk they must repurchase to the nearest Canadian point, and from there to Brantford a ticket with a certificate. Those traveling on the C. P. R. can purchase a ticket for Woodstock or Galt, and then to Brantford via C. T. R. When two railway lines are used, two certificates to fill out must be secured from me. At Brantford the following hotel rates have been secured at the Kirby House: Regular rates, \$2.00; rate to members, \$1.50. Commercial Hotel, regular rate, \$1.00; rate to members, 75 cts. per day.

Both hotels are within less than a block of the City Hall, at which place the convention will be held, Dec. 4, 5, 6, 1889. There is a sample room for the display of honey bee-keepers' supplies, etc., so all should bring something.

R. F. HOLTSMANN, Sec'y.

KIND WORDS FROM OUR CUSTOMERS.

Please mail me three or four of your seed catalogues as soon as out, and I will hand them to friends with my opinion. My seeds were of the very best, and a half cheaper than elsewhere. I can send orders for \$100 worth of seeds alone.

Lewiston, Ida., Nov. 10, 1889.

L. A. PORTER.

HOW TO FIND A CUSTOMER FOR HONEY.

You need not put my advertisement in again. The postals and letters come in nearly as fast as I could read them. If you have more than you want of honey, just tell it in GLEANINGS, and away she goes. I received letters of inquiry before I received GLEANINGS. I was "just astonished, I was." The advertisement, "Bees for Sale," you may omit. Elsie, Mich., Nov. 24, 1889.

N. L. HIGBIE.

A few weeks ago I wrote a second time to have GLEANINGS stopped. You very kindly did so, or, rather, I should say you were kind enough to send your check for \$100 for the year when I did not want it. Really this is too generous. I read your paper all that time, and think I got my \$1.00 worth of information; so I return your check, with a feeling that I have at last found what is popularly not supposed to exist; viz., an editor with a soul. Perhaps it may be of interest to you to know that GLEANINGS is on file here in the Agricultural reading-room, and also that Prof. Comstock conducts a summer course in apiculture in the university.

Ithaca, N. Y., Oct. 9, 1889. J. VAN WAGENEN, JR.

Save 10 Per Cent.

SAVE TEN PER CENT AND ORDER YOUR SUPPLIES THIS MONTH.

We carry a complete stock of Sections, Hives, Smokers, etc. Illustrated catalogue for your name on a postal card.

R. B. LEAHY & CO.,

23-1db

Higginsville, Mo.

In responding to this advertisement mention GLEANINGS.

FOR SALE!

One of the best located apiaries in Iowa, 150 Colonies, in Langstroth hives. Handsome two-story frame residence. Twenty acres land. All necessary out-buildings. Also fine flock White Wyandottes. Two cows, nice span driving horses. Never a failure of honey. White clover, basswood, golden-rod, buckwheat, etc. House nearly new, nicely decorated paper, a very pleasant home. Price \$2500.

C. A. SAYRE,

23tfdb

Sargent, Floyd Co., Iowa.

In responding to this advertisement mention GLEANINGS.

DOOLITTLE

Wants You, reader, to turn to page 533 of GLEANINGS for July 1st and read his article, and A. I. Root's comments thereon; then if you are interested in **Bearing Queens**, or in their **Safe Introduction**, send \$1.00 for this cloth-bound book of 170 pages. Address **G. M. DOOLITTLE, Borodino, Onon. Co., N. Y.**

In responding to this advertisement mention GLEANINGS.

WANTED.—To exchange one M. C. Henley Fence machine, almost new, for honey, or supplies, or any thing I can use. GEO. R. STEWART, New Florence, Westm'd Co., Pa.

WANTED.—To exchange Winchester repeating rifle, 22 cal.; a splendid target gun, in good order, for apiary supplies. GEO. W. MILSE, Teepleville, Pa.



Vol. XVII.

DEC. 1, 1889.

No. 23.

TERMS: \$1.00 PER ANNUM, IN ADVANCE; 2 Copies for \$1.90; 3 for \$2.75; 5 for \$4.00; 10 or more, 75 cts. each. Single number, 5 cts. Additions to clubs may be made at club rates. Above are all to be sent to ONE POSTOFFICE.

Established in 1873.

PUBLISHED SEMI-MONTHLY BY

A. I. ROOT, MEDINA, OHIO.

Clubs to different postoffices, NOT LESS than 90 cts. each. Sent postpaid, in the U. S. and Canada. To all other countries of the Universal Postal Union, 18 cts. per year extra. To all countries not of the U. P. U., 42 cts. per year extra.

OUT-APIARIES, NO. XX.

GENERAL REMARKS—PICNIC DINNERS, ETC.

HAVING talked over the main ground of what is peculiar to the work of out-apiaries, I want the liberty of a little desultory talk. I find there is a growing feeling among beekeepers that they want to keep a smaller number of colonies in an apiary for best results, and, somewhat as a result, the number of out-apiaries is on the increase. I am not so sure that some are not making mistakes. What is just right for one man is not always best for another. With your time and surroundings it may be better for you to limit or lessen the number in your home apiary and confine yourself to that. You may be very successful in a single apiary, doing all the work yourself, and make a dismal failure if you attempt to run a number. Then it's one thing to have a force of hands present with you all the time, going from apiary to apiary, and quite another to have each apiary separately manned. Feel your way, and find out just what you can best do.

In the new Langstroth on the Honey-Bee, so excellently revised by Dadant, he very wisely says: "Do not put your bees on land which is tenanted. Let them be placed at some responsible farmer's own home, for a tenant may leave on short notice, and you can not remove your bees at all seasons." I may add, that it is much pleasanter to go each year to the same place, as you get better acquainted.

When you leave for the winter, be sure that every thing is picked up and left in neat shape at the out-apiary—nothing to offend the eye of the farmer's good wife every time it happens to stray in that direction. And here I must confess the superiority of womankind. Many a time when the shop or apiary appears to be in dire confusion, I say to my

wife or Emma, "It's a hopeless case. You're welcome to all the physical strength I have—tell me just what you want me to do, and I'll obey orders implicitly, but don't ask me to engineer the thing."

Another thing in which a woman's presence and skill are appreciated is in the matter of lunch. Of all the meals we eat, I think none are enjoyed so much as the dinners at the out-apiaries. Of course, every thing is cold, but the weather is such that we're not anxious for hot things. Under the shade of the trees in the pure air, a cloth is spread on some hive-covers, at a safe distance from the hives, so no scolding bees will be around, and the few articles of food are placed thereon, with no superfluous garniture in the way of dishes beyond what are actually needed; seats are taken, God's blessing asked, and we eat with a relish that might well be envied by those who sit before carved tables loaded with costly viands in dishes of silver and gold.

Sometimes our work is such that we visit one out-apiary in the forenoon and another in the afternoon; and by way of variation we stop at some pleasant point on the road between, and, without leaving our seats, eat our dinner. I say *dinner* rather than *lunch*, because it is the principal meal of the day. Although it may not be convenient, if indeed it were best, to have a great variety at one of these out-door meals, the bill of fare from which we may select for different days is by no means small, including cold meats of all kinds, the different canned goods including fruits, fish, oysters, etc., fresh berries, sandwiches, bread and butter, boiled eggs, morning's milk in a Mason fruit-can, cold asparagus, peas, beans, etc.

You can see that it's a sort of picnic every day. I must say that, if even the plan of having each one isolated at a separate apiary were just a little more profitable, I should still prefer to keep the crowd together, and I should want no discordant element,

as nearly as possible just like a family, and all having such an interest in the work as to make it a pleasure to talk over together the plans and prospects.

C. C. MILLER.

Marengo, Ill.

Friend M., there is one thing in your remarks that takes a mighty hold on your old friend A. I. Root. God's blessing is asked on the cold lunch spread on top of a beehive. No matter how busy you are—no matter how commonplace may be your surroundings, in the middle of the day and in the midst of the work you all agree to come to order, or, if you choose, you call yourselves to order while the divine blessing is invoked. I know we do not always feel like it; at least (and I am ashamed to say it) I do not always feel like it; but that is the very time when it is of the utmost importance that we bow our heads in reverence to the great Ruler over all. Asking the blessing seems to settle the troubled waters, and it always has the effect of making all the good there is in me come uppermost or to the surface, and also of making all that is bad or wrong go away out of sight. If I had been cherishing a wrong feeling when it comes time to ask a blessing, the wrong feeling must be put away, crowded down out of sight. Nine times out of ten it stays down out of sight, and perhaps never shows itself again. Perhaps some new reader of GLEANINGS may inquire, "Well, what has all this to do with out-apiaries?" Simply this, my friend: It will oftentimes of *itself* decide between success and failure.

SETTING BEES IN THE CELLAR, ETC.

FRIEND DOOLITTLE GIVES US SOME GOOD HINTS ON A SEASONABLE MATTER.

I AM frequently asked which is best, a cold day or a warm one, to set bees in the cellar; and I invariably reply, that I prefer the warm one. I never set bees in the cellar when they went in with as little trouble as this year. Two days before, they had a nice fly, the mercury going to 63° in the shade, with scarcely a cloud or a bit of wind. That night and the next day the weather was very drying, while on the morning of the second day it looked as if fixing for a storm. I said to myself, "Now is the time to put the bees in the cellar;" but upon looking at the thermometer I found that it marked 52°, while bees can fly at 45°. I was a little afraid that I might have trouble with their flying while it was so warm; but I resolved to try, and, to my astonishment, I found that I never set bees in the cellar when they flew as little or were disturbed less than with this warm temperature. As the hives were not frozen down on the bottom-board, they lifted off the same without a bit of jar, thus helping much in the matter. To keep from jarring them in carrying to the cellar I placed several thicknesses of old carpet on the spring wheelbarrow, letting the same run up over the front board, to which it was tacked on the back side, to keep it from slipping down. The hives could now be set on the wheelbarrow without the least bit of jar; and as the work of carrying them into the cellar seemed rather uncalled for, after I had them at the door of the cellar I conceived the

idea of laying down a couple of plank, which made it just right so that I could run the wheelbarrow right into the cellar, and thus bring every hive to the place where it was wanted, so that all the lifting there was to it was the setting them on the barrow and off again. Only now and then a colony seemed to realize that they had been disturbed at all, and I believe that it will be quite a little in their favor for safe wintering, in their not being disturbed in putting in. I can not help but think that it is much better to put bees in thus early in warm weather, than to wait till into December, as some advise, when it often happens that the hives are covered with ice and snow, and the inside of the same covered with frost, the melting of which causes a dampness to the cellar and hives not beneficial to the bees.

HOW TO WINTER THE HIVES WITH HALF-DEPTH FRAMES.

I have had very many letters since my article appeared in September GLEANINGS about "Non-swarmers," speaking in very high terms of the same, and many ask how I intend to winter the bees in these half-depth frames. My way of fixing them is this: After the honey season is over I look them over to see what honey they have in the combs; and whether I find any or not, I place eight combs which are the nearest empty of any, next to one side of the hive, when the other half of the hive is placed on top of this one, the same as used in the early part of the season. During the season I have used some of these half-story hives on the colonies which were worked for extracted honey, looking toward the wintering of these colonies; and as fast as they were filled they were set away for this very purpose, so that all I have to do at this time is to go to these hives stored with combs of honey and get eight frames from them, which are generally so well filled that they will weigh three pounds each, so that the eight contain 24 pounds of honey, which is the right amount the bees need for winter. These are set in the upper half of the hive, directly over the others in the lower half, when a division-board, such as is used in full-depth hives, is set in next to the combs, thus making a hive a foot square for wintering, with a passageway through the center of the combs for the bees to pass and repass as the cluster contracts or expands during the winter. In this way I get a deep hive for wintering, which some contend is better than a shallow one; and I get the bees in a snug compact form for winter, which my old teacher, E. Gallup, claimed to be of great advantage, and do away with the Hill device, or the cutting of holes through the combs for winter passageways, as nearly all bee-keepers think must be done. The space between the division-board and the end of the hive is now packed with chaff; and if they are to be wintered on the summer stand they are packed all around with chaff between the outside shell and the hive. When sugar is low enough so it can be afforded, the bees can be fed instead of putting in the frames of honey as above; or they can be fed at any time when sugar is high if the bee-keeper thinks that sugar is preferable to honey to winter on.

AT WHAT TEMPERATURE DO BEES FLY?

On page 418, 1889, I find these words: "Bees in health seldom go out of their hives unless the temperature of the air runs to about 55." As I can not agree with this, I wish to say a few words on the

subject, as it may lead some one into trouble. All of the older readers of GLEANINGS will doubtless remember the experiment which I tried, of keeping my bee-cellar at about that temperature one winter by the use of an oil-stove, and how all of the bees left their hives during February and March, in many instances, thus causing me the loss of nearly all of them; while both before and since I have been very successful in wintering bees in this same cellar when the temperature ranged from 42 to 45, as it always does when no artificial heat is applied. During the months of November and December, bees are comparatively inactive in this locality, no matter what the temperature may be; but as spring draws on apace, the bees seem to realize it, so that a temperature at which they were quiet in December will not be endured by them later on. For this reason I have frequently seen

a still, cloudy day, and the bees I thought at the time would probably fly as soon as the temperature got at the right point. At 50 none were seen outside; at 52 and 53, only a few; while at 55 there was a pretty general buzzing all over the apiary.

A TEXAS APIARY.

A VIEW OF CALDWELL'S HOME YARD.

FRIEND ROOT:—By way of an explanation of the engraving, I will say that this is my home apiary, and it consists of 200 colonies of Italian bees. Part of the hives are cut off from view by the building, which is the extracting-room. The boy with the wheelbarrow is bringing empty combs to be put on one of the 35 hives on the



A GLIMPSE OF A TEXAS BEE-YARD.

bees bringing pollen at 42 during the month of April, and general work being done later on, with the mercury at from 48 to 50. G. M. DOOLITTLE.

Borodino, N. Y., Nov. 16, 1889.

Well, old friend, you ought to have a medal for that idea of putting a carpet on the wheelbarrow and tacking it so it can not slip. When reading it I felt ashamed to think that I had never before thought of any thing so simple. I agree with you, that two tiers of half-depth frames seem to offer many advantages for winter. When it comes to rearing brood in the spring, however, it seems as if those spaces with a stick above and below were not quite the thing when you want to push brood-rearing. You may be right about the temperature bees fly. My statement was based on an experiment made, I think, in the spring. It was

left side. These are run for extracted honey. The hives on the right are fitted out with T supers, and are run for 1-lb. sections. I have a good home market for all the honey I can produce.

The honey-flow has been poor this season. We get our best honey from white brush, a plant which is valued only for honey. The honey much resembles that from sweet clover. I have several out-apiaries, and can say that I have had but one total failure in the past seven years that I have devoted almost entirely to bee-keeping. J. P. CALDWELL.

San Marcos, Tex., Oct. 10, 1889.

Friend C., we are very much obliged indeed for the beautiful glimpse you give us of your home in the South. The little curly-headed girl a little in the background, between the two lawn hives, especially draws us to the picture. The stout boy with a

Daisy wheelbarrow, carrying two Simplicity hives, in the background, is another pleasant feature. The fellow behind him, still further in the background, has probably been taking his turn at the wheelbarrow, for he seems to be resting. The trees which are scattered among the hives, from their boughs and foliage I should call the eucalyptus, or blue gum, that I saw in California. You did not tell us that it is yourself holding a comb as if you were looking for the queen, but I guess we will take it for granted. The sunlight, as it falls on you through the foliage, at first sight would almost make one think you had been picking blackberries, and had got your shirt torn. We are glad to know that you have been successful in bee culture. We remember your name and your kind words, away back, almost if not quite as long ago as when GLEANINGS first started.

A LITTLE TALK ABOUT BOOKS.

WHAT BOOKS TO READ.

Of making many books there is no end.—ECCLESIASTES 12 : 12.

THE above text seems to have been very literally fulfilled of late years, for a great number of books are written every year, and new books are being published daily. How very different from what it was sixty-five or seventy years ago! Books were not so numerous nor so cheap in those days, and a family who could boast of a library containing a Bible, Testament, Hymn-book, Baxter's Saints' Rest, Call to the Unconverted, Pilgrim's Progress, Æsop's Fables, a few school-books, and perhaps a volume of history or one or two story-books, were considered very rich in literature; were looked up to, and oftentimes envied by their ambitious but less-favored neighbors. To-day, if any one should attempt to enumerate the books of a good, bad, and indifferent character which are being brought into the majority of homes in our land, they would find they had undertaken an herculean task—one impossible to accomplish.

Although it would be impossible to give an extensive list of good books in a short article, it may not come amiss to mention a few interesting ones, and perhaps they may prove helpful to some persons who wish to purchase books for Christmas presents.

"Letters to a Daughter," and "Letters to Elder Daughters," are two excellent books (are small, the two cost \$1.25), by Mrs. Helen Ekin Starrett. They will be welcomed and appreciated by any young girl who desires to become a noble woman, dignified and refined in her manners.

"Six Girls," by Fannie Belle Irving, is an excellent story of home life. It is bright, and full of life; will be enjoyed by any girl, and at the same will teach her useful lessons.

Books by Pansy, Louisa M. Alcott, Mrs. A. D. T. Whitney, the Misses Warner, Miss Mulock, Hesba Stretton, Mrs. Andrew Charles, Mrs. Elizabeth Prentiss, and others of similar character, are healthful in tone, good in sentiment, and enjoyable.

"Stepping Heavenward," by Mrs. Prentiss, has been more widely read, I believe, than any of her other works; and right here let me tell you a little incident concerning it. Some young ladies were one day discussing books by various authors, when one of them remarked in an interrogative way:

"'Stepping Heavenward' is a good book; have you read that, girls?"

"No," said one; "I never read it, but I have heard a great deal about it, and would be glad to read it if I had an opportunity, for I think I should like it."

"Well," said another, "I don't know whether I should like it or not. To tell the truth, I think the name sounds too 'goody-goody'; and I don't like prosy or 'goody-goody' books; they are too insipid. I like good books, but I want them to have a little spice of wickedness in them—just a little, you know, enough to make the characters seem like human beings instead of angels. Now, I am not very good myself; and when I read of these marvelously good people it makes me feel so awfully wicked. Then I'll confess I'm seized with a desire to shake them up and try to make them like ordinary mortals, or else send them off to heaven, where they will find congenial society."

"Well, my dear," laughingly rejoined the first speaker, "if you desire 'congenial society,' some one with 'a spice of wickedness,' you can find it in the heroine of 'Stepping Heavenward.' She had as great a horror of being 'goody-goody' as you have; and when she tried to be good and step heavenward she found it exceedingly hard work. Read it, and see if it is not so. It is an excellent book, and will prove interesting as well as profitable."

A book by Margaret Sydney, "How Tom and Dorothy Made and Kept a Christian Home," is a sweet little story of home life. It tells us how a young couple made a home for themselves, and lived true Christian lives under rather trying circumstances. It is well worth reading by any young person, and might also benefit their elders.

"Ben Hur; a Tale of the Christ," by Gen. Lew Wallace, is so well known that one needs but to say that it gives us an imaginary history of Christ's life on earth; is exceedingly fascinating, seeming to fill out the history given in the Bible, making it more real to our minds, and is a book which can be read and re-read with interest and profit.

"In His Name; a Story of the Waldenses Seven Hundred Years Ago," is a lovely Christmas story. "Ten Times One Is Ten: The Possible Reformation," is a story of reformation. These two books are by Rev. Edward Everett Hale, and are the origin and foundation of the societies known as "The King's Daughters," "The King's Sons," "Lend a Hand," and some others. These books are delightful, and profitable reading for any one.

With Harry Wadsworth's motto—which is the motto of these societies—we must close our little talk.

To look up, and not down;
To look forward, and not back;
To look out, and not in; and
To lend a hand.

Ipava, Ill., Nov. 9, 1889.

ANNA B. QUILLIN.

Many thanks, my good friend, for the suggestions you make in regard to what books to read. I can warmly second what you say about "Stepping Heavenward;"

and I wonder, since you mention it, that we have not had it on our book-list before. —I am glad to know that there is a book published in regard to this organization known as the King's Daughters. There is something inspiring in the very thought; and when we come to know that their work is really in spreading the truths of the gospel, we can not wonder that a blessing seems to follow them. At our noon-day service, we have been in the habit, every Thursday, of repeating texts. For some years text-day seemed to drag a little. Finally a band of King's Daughters was organized among our women-folks, and since then we have had more beautiful texts, sometimes, than our ten minutes will give room for.

WIRED FOUNDATION.

FOUNDATION ON FINE WIRE, CHEESE CLOTH, OR OTHER FABRIC; IS THE IDEA NEW?

I HAVE read in the *American Bee Journal* of wooden comb and its many claims, and this set me to thinking about the wired combs. I thought this: Why not take close, smooth print cloth, or good cheese-cloth, or even the veiling or strong unsized paper, or else fine wire cloth, or any such material, which upon trial may be found suitable, and pass it through the melted wax, the same as the wire cloth is passed through the melted metal to coat it? If one time passing through should not be sufficient to give a suitable coating, pass through the second time, and let it be rolled upon round rollers or drums; then to print or manufacture, run through the machine as the dipped sheets are, then there will be no trouble about combs breaking down, queens hiding in the holes, and running around the ends and the bottoms, for the sheet of foundation can be tacked in tight, full, and straight. What do you think of this? Is it original? Who has tried? Will it do? Why will it not do? Many other questions could be asked.

What do you think of foundation made on fine cloth, put up in rolls of 25 yards, of all widths? If I had a machine, I would not ask so many questions. I feel very confident that there is no reason why it can not be made, and that the bees will not work it out as well as they will any other foundation. If so, then wired frames will be a lost art, broken combs a crime, shipping bees and their combs a certainty that is doubly sure. Try this on some fine close cloth; and if it will do, say so. If any person has tried it, let him arise and say when and where, so that, if there is any good in it, I want the originator to have the praise and the profit. I do not think it will take as much wax to properly coat such cloth as to make the brood-comb foundation, as we use a fine cloth coated with beeswax, and torn into strips about one inch wide for wrapping the buds in when budding the orange-tree; and from this I think there can be no doubt but that such comb foundation can be made, and I will leave it to you and the bee-keepers to test; but if I am the first, I want the credit as the originator, and shall claim the right of a patent if I so think in the future.

JOHN CRAYCRAFT.

Altونا, Lake Co., Fla., Nov. 11, 1889.

Friend C., you are wasting your time and brains in giving any further attention to cloth or other material as foundation as a base for making foundation. Every thing you suggest has been invented again and again. Cheese-cloth or any other kind of cloth will be eventually torn out by the bees. They seem to regard it as some indication that the moth worms are at work. Paper has been used to some extent, but it is open to the same objection. Very fine light wire cloth will do, but it spoils your rolls, and makes your foundation unnecessarily heavy. You can not incorporate any thing of the sort without using a great deal more wax than you use with the ordinary wired frames. No doubt you could get a patent, and very likely it would be worth fully as much as the patents we have already on bee-hives and their fixtures—just nothing at all.

ALFALFA IN MICHIGAN.

VALUABLE POINTERS FROM GEO. E. HILTON.

FOR the past three years I have been trying to get the farmers living on the light sandy land known as "stump lands," and where it seems quite difficult to get the common clovers to catch, to try alfalfa. Two years ago a Mr. Davis, living about four miles from here, sowed a small patch, and it did nicely. Last fall I sent for a bushel of seed, and a friend of mine has sown it. Should this prove a success it will not be long until there will be a large amount sown abroad here; and if it produces honey in Michigan, as friend Ball reports from Nevada, Middle and Northern Michigan is coming to the front as a honey-producing locality. What a wonderful transformation it would be, friend Root, if that waste of land we passed over on that (to me) eventful day between Baldwin and White Cloud could be covered with fields of alfalfa, dotted with happy homes surrounded by herds of cattle and humming bees! Our State officials see the necessity of reclaiming these lands, and now have experimental farms at Baldwin and other places. I am watching closely, and hoping that alfalfa is to be at least one of the agencies to do the work. I shall watch closely this little experiment in which I am directly interested, and report as fast as there is any thing to report, either favorable or otherwise.

WIDTH AND THICKNESS OF TOP-BARS.

I very much dislike to throw a "wet blanket" on any project, but I don't think the heavy-top-bar project will "hold water." About two years ago, T. F. Bingham shipped his entire apiary to me. It now comprises my out-apiary, known as the "Goldenrod Apiary." You are aware, the top-bars are $\frac{1}{4}$ of an inch square; the ends of frames project $\frac{1}{2}$ of an inch above the top-bars; then comes the slatted honey-board, then the clamp of sections, with $\frac{1}{2}$ -inch bottom-bars, bringing the sections $2\frac{1}{4}$ inches from the brood, providing the brood is close to the top-bar, and it usually is, in these shallow frames. Now, if the honey-board could be dispensed with we could get the sections $\frac{3}{4}$ of an inch nearer; but, bless your heart, in 99 cases out of 100 it is built so full of comb that in some cases there are not as many "top-holes" left as one row of

perforated zinc would make. This would make a bad condition of things were the clamp placed where the honey-board now is. They seem to enter the sections just as readily as they do in my hive where the sections are only $\frac{1}{8}$ of an inch from the top-bar, or $\frac{3}{8}$ of an inch from the brood. The matter of distance of sections from brood was brought up at our last State convention, and some of the friends said they had put on three or four honey-boards, and could see no difference in the bees entering the sections. But, all things considered, I prefer having the sections as close to the brood as possible. In my home yard there is but one bee-space, no slatted honey-board, and no burr-combs, and all increase comes under this plan. I think, in Oct. 15th issue of GLEANINGS Prof. Cook spoke of the advocates of chaff hives, clamps, etc., for wintering. He did not get the mode of packing the Bingham hive just right. They are in winter quarters now. If you would like I will have a photograph taken, and send you, with description and manner of manipulating for comb honey.

Fremont, Mich., Nov. 21, 1889. G. E. HILTON.

Friend H., well do I remember that eventful day; and every time I think of it, especially when brought to mind by your earnest work in the Master's service, I can only say, "May the Lord be praised!"—Since you speak of it, I do not see why alfalfa should not thrive on many of the sandy wastes of Northern Michigan. If any of our bee-friends in that section have given it a trial, will they please speak out?

CONVINCING TESTIMONY OF THE VALUE OF BEE-STINGS AS A REMEDY.

HOW THEIR DIRECT APPLICATION CURES INFLAMMATORY RHEUMATISM; BY A COMPETENT
PHYSICIAN.

FRIEND ROOT:—I have seen several statements in GLEANINGS in regard to rheumatism being cured by the sting of bees. I will now give you some of my experience, and a few facts, which have placed *apis mellifica* very high in my estimation as a rheumatic, and also as a kidney and bladder remedy. I give it in many cases for these diseases when indicated.

1. I do not recommend it in *all* cases; but it is worthy of a trial; and if it gives relief it will nearly always effect a cure if continued for some time. As rheumatism is often caused from diseases of the kidneys and bladder, I deem it a favorable sign when the flow of urine is increased, if ever so little, by its use. It matters very little which way it is introduced into the system, just so it gets there. I have used the tincture many years in my general practice, and I should not like to dispense with it. Its use has a broad field in the healing art, and is not confined by any means to the above-mentioned diseases. In the treatment of rheumatism I should rather prefer the direct sting from the bee, if it were possible to apply unbeknown to the patient, which I have succeeded in, in a few instances, for I fear that, to make public the mode of application, would have a tendency to elicit unfavorable comments from the medical fraternity and a criticising public.

In the month of January, about twelve years ago, I was called to the country to see Mr. J. B. I found

him confined to his bed with inflammatory rheumatism. The attack was very severe, considerable swelling and intense pain. Not having any *apis mellifica* in my case, I inquired if they had any bees. I was answered they had, and I requested to be taken to a hive. I procured a number, and returned to my patient. I gave him one sting before he knew what I was doing. He said, "Oh my! Dr. Gress! do you intend killing me?" I assured him it was necessary to give him relief in that way or he would have to continue suffering until I returned to town and procured other remedies. After arguing a few moments I gave him a second pop, and then again a third, fourth, fifth, and I think in all about eight, when he commenced to enter serious objections, so I patiently awaited results, which soon followed in the way of relief of pain, free secretion of urine, and perspiration. I left one hour after, with advice to use the little doctors in the morning. In the afternoon he came to town to see me, and during our conversation he stated he would like to have me make a statement in the paper in regard to the great benefit he had derived. I objected, for reasons before given. But I am frank to admit that I never attended him for any more rheumatism, as the bees were always his doctor in that particular disease.

My second experience was with a negro who applied at the office, suffering with inflammatory rheumatism. I requested him to call at two o'clock, as I had just received a call. While at home at dinner time, I procured some of my cross Italian bees, and on returning to my office I turned them loose in my consultation-room, so I could go in and pick them up as I should require them. I examined the limb, found it swollen and painful. Using his own words he said, "Doctor, if you don't do something for me I shall be compelled to get some one to carry me home. I am growing worse every minute." I told him I would use the medicated needle, as it would act quick. I secured one of my little doctors, hiding it with a piece of tissue paper. I quickly applied it to a sensitive spot. Say's he, "Boss, that needle am pretty sharp," and began to scratch the place, while I went in for another Italian bee. Returning I gave him another pop. He then, wanted to see the needle. Of course, I did not show him what I had used. I then went back to "put some more medicine on the needle," and on my return he exclaimed, "Say, boss, that pain am getting better; but it am smarting just like the sting of a wasp." I made no answer, but kept on applying until I had stung him about ten times. Perspiration now commenced to start, when he got up, stating he was free from pain. He called the next day, stating he gradually grew better, and there was scarcely any swelling left. I have used the tincture of *apis* with almost the same results, although for prompt relief I prefer the "little doctors."

Atchison, Kan., Nov. 20, 1889. P. C. GRESS, M. D.

Well, friends, this begins to look like business in dead earnest, so far as inflammatory rheumatism is concerned. There are enough, I presume, afflicted with this malady to give the matter a complete test in a very short time. If one case of inflammatory rheumatism in ten is cured as promptly as in the above instances, the discovery will be a boon for mankind, without any question. Let the afflicted at once make the trial, and report.

CUCKOO-BEES.

WILL WONDERS IN ENTOMOLOGY NEVER CEASE?

FRIEND ROOT:—I have become very much interested in these cuckoo-bees. I have several communications regarding them, so that it seems to me there can be no mistake in the matter. The longest and most interesting letter is from Mr. E. H. Collins, the intelligent and wide-awake president of the Hamilton Co., Indiana, Bee-keepers' Association. Mr. Collins states that, at their May meeting, the matter was discussed at length. Many complained of a small black bee robbing in their apiaries. It was urged by all, that closing the entrances of the hives did no good. The bees seemed to make no effort to repel the invaders. It was also urged, that the queens could not be at fault, as the colonies were strong, and the hives full of brood; yet the little bees pass into the hives in a stream. Several confirmed these statements, and insisted that these bees were not the common black bees. The association voted that their president investigate the matter. Mr. Collins wrote to me, but, unfortunately, sent none of the bees. You will remember my suggestion, that the intruders were probably our common small black wild bees—*Andrena*—as I had often known of their stealing into hives for honey. You, in an appended remark, suggested that they were robber-bees that appeared small and bald, from the hard usage that they had received. Mr. Collins reported the above to the society at its next meeting, but neither my explanation nor your suggestion seemed to satisfy those most interested. An old experienced bee-keeper, but an uneducated man, said the insect was not new, as he had seen it before, and he was sure it was produced in the hive. He had often seen it come forth from the cell. Mr. Collins also writes that *he is sure that these bees are reared in the hives*. At the August meeting of the Society, held at Oran Maker's, Westfield, Ind., this old gentleman took some of the members to an apiary; and though the bees were flying but little—as the day was cold and unfavorable—still two of the bees were caught. Mr. Collins says he sent these bees to me. I regret to say that they never reached me. It seems that several present at all these meetings were familiar with the bees, and some had hunted for them in the forests, but to no purpose. Mr. Collins says he will promise to send scores to me next summer, or even a whole colony that is infested, if our station wishes to experiment with them.

You see, Mr. Editor, that these are almost certainly the same bees—species of the genus *Apothys*—that Mr. Perry Moore sent me, and which I described in brief in GLEANINGS, current volume, page 811. The specimens sent by Mr. Moore are denuded of their hair, so I can not surely identify the species or send you a good drawing. Just as soon as I can get a perfect specimen I will do both. This is certainly a very interesting discovery; and as several have requested it I will give a more complete account of these bees. These bees are not social, like the honey-bee, bumble-bee, carpenter-bee, and yellow-jackets, but are solitary. Instead of queens, workers, and drones, there are only males and females.

Owing to some peculiarity, perhaps that they are reared in the hive, these bees are permitted to enter the hives as freely as are the rightful owners.

This possibly explains their occupancy of the hives, and their undisturbed ingress and egress. Of course, it would not explain the first entrance; but it is easy to see how a sharp, wide-awake bee might steal in and deposit a score or so of eggs in the cells, even by a colony of Italians or Syrians. It will be remembered, that Sir John Lubbock, in his admirable book, "Bees, Ants, and Wasps," states that, if ants in the pupa state are taken from one colony and given to another, they will be accepted and reared, and then the mature form could be returned to the parent nest with no harm; while if an ant, reared throughout in colony No. 2, were given to colony No. 1, it would be dispatched at once. We all know that young queens just from the cell will be graciously received at all times, if introduced into another colony of bees. Thus we easily believe that the cuckoo-bees, reared in a colony of honey-bees, would be considered as real children of the bee-home, and always welcomed as such.

I do not think these bees have ever been known to "cousin" on the honey-bee before. How serious a matter it will become, will depend wholly upon how numerous they get in a hive. A hundred or so would do no more harm than so many drones, possibly not so much. If they are able to appear in thousands, then it will be quite a different matter. Their winter habits will control this largely. If they pass the winter in the hive with the bees, so that all survive the winter, then we may well be solicitous regarding the future mischief of these bees. I am very desirous to work out the entire problem, and shall be very grateful for specimens, and also for any observations which others may make. A. J. COOK.

Agricultural College, Mich.

And so this insect really used the principle of the diving-bell, with an air-tube reaching above the surface of the water, ages and ages before mankind ever thought of it!

A GLIMPSE AT OMAHA.

A LETTER FROM MRS. JENNIE CULP WILLIAMSON.

DEAR BROTHER:—After a silence of over two years I shall venture to write you a few lines, for my heart and sympathies are still with the bee-brethren of Ohio, even if I am away out here in "Newbraska." I do not know much about that branch of industry here, but the subject is, being talked up. Almost the first call I return I found your A B C, with my home and apiary in it, occupying a prominent place among the young people's books. If you have ever been a stranger in a strange land, you can imagine with what pleasure I greeted it.

It is too bad, Bro. Root, when you were returning from California you did not stop off at the great Gate City of the West, and see how they "run" things here. One of the greatest items of interest to me is the great number of churches; also our Y. M. C. A., with a membership of nearly 1,000 young men.

Our city contains about 24 square miles, and it is astonishing to see the miles of paved streets we have in a city so young, and the rapidity with which we can travel over it from one end to the other with our cable and motor cars. Columbus, O., seemed very tame to me this fall when I was home on a visit. I spent a month at my old home

with the honey-bees, and I am proud to tell you that my son Charlie proves to be a "chip off the old block," for he is running the apiary as successfully, to all appearances, as I did; and I am still more pleased to find he is training up his two little "chips" in the business. Henry, past seven years old, took the smoker last summer, went down into the apiary, opened up a nucleus hive, took out the cards, and found the queen; and Harry (five years old) would amuse himself by playing he was A. I. Root shipping queens. He would take a tin cup, pair of scissors, and an old queen-cage, sit down by a bee-hive, and catch the bees by their wings, clip them, letting them fall into his cup until he had enough to select his queen from, stir them around with his little fingers, seldom getting stung. Now, while I would not allow that to be done a second time after I found it out, it certainly did please me to think I had a little grandson so courageous; and it gives me encouragement to think the children and grandchildren, in all probability, will take care of grandma's bees from this out; but they will remain mine, I think, while I live. They are a source of comfort to me, even if they are 900 miles away. Living in the very heart of the city as we are, I have to deny myself the pleasure of keeping bees.

MRS. JENNIE CULP WILLIAMSON.

Omaha, Neb., Oct. 23, 1889.

We are glad to hear from you, dear friend; but it seems a little sad that you can keep bees no longer. Can't you have a few hives on the roof of the house, even if you are in a city, as friend Muth is? Most people who have once had a real love for the bees will return to the pursuit, sooner or later; and we rather expect to hear that you are keeping bees again, before many years. I should have been exceedingly glad to make a call on you.

A GLIMPSE AT THE FACES OF THE OFFICERS OF THE ASSOCIATION.

A SHORT SKETCH OF THE SECRETARY OF THE
N. A. B. K. A.

IT is with pleasure that I give our readers a view of our energetic and efficient secretary of the North American Beekeepers' Association, Richard Ferdinand Holtermann was born in the city of Hamburg, Germany, June 14, 1860. Two years later, the parents, with their son and two daughters, emigrated to Canada, settling in the county of Renfrew, Ont. Here, at the age of twelve or thirteen, young Holtermann received a portion of his education from a governess. Later he was sent to a private school, and shortly afterward he attended the Ottawa Collegiate Institute at Ottawa. Here his mind wandered, he says, in the direction of boating, cricketing, swimming, etc., rather than toward study. When about fourteen his father moved to Toronto, and then sent his son to the Upper Canada College, and subsequently to Day's Commercial College, where he received the "1 A diploma." He then decided to go on the farm. Shortly afterward he attended the Ontario Agricultural College. Here he graduated with honors, being only 70 marks out of 4000 behind the first medalist. It was in this school, in the capacity of librarian, that

the subject of apiculture was opened up to him through the medium of the A B C and Cook's Manual. The next season was spent as a student with D. A. Jones, in the apiary. He next made the great mistake, he says, of embarking in apiculture a little too soon. The result was, he learned many severe lessons. With his apiary of 79 colonies he underwent the trying ordeal of a bad season to begin with. However, he secured enough alsike honey to enable him to secure the second premium at the Toronto Industrial Exhibition.



R. F. HOLTERMANN.

Later he entered into some speculations, and came out nearly \$1000 in debt; but, unlike a good many young men, he was not discouraged, went to work again, and paid 100 cents on the dollar, instead of trying to get out, as he could have done, by paying a few cents on the dollar. He entered the employ of E. L. Goold & Co., of Brantford, commencing at 85 cents a day, and left as manager of the supply-business, and editor of the *Canadian Honey Producer*. He married, May 17, 1887, Lois, daughter of S. T. Pettit, whom he met at the last meeting of the N. A. B. K. A., held at Rochester, N. Y. They have one son and a daughter; and in their home they seek to have God's will their own. As might be expected, Mr. Holtermann uses neither tobacco nor liquor.

Mr. Holtermann has made bee-keeping pay, and he has averaged, he says, latterly \$8.00 per colony income. He thinks anybody can do as well in a fair locality, providing they start with one or two colonies.

Mr. Holtermann has been active in bee-associations, in which he has held various offices. At the late meeting held in Columbus his name was proposed several times for

the presidency of the association; but he very modestly declined the honor, in favor of another member. His name was next proposed for secretary, and was carried by the unanimous consent of the association.

DR. A. B. MASON, THE MAN FOR SUPERINTENDENT OF THE APIARIAN DEPARTMENT AT THE WORLD'S FAIR IN 1892.

Well, now I have given you a little insight into the life and face of the secretary of the association, I can hardly with propriety omit in this connection the genial face (it's sober in the picture) of the president of the association. We have already given our readers a view of him, accompanied with a biographical sketch; but he is such a large-hearted, good-natured, and almost indispensable member of bee-associations that I feel constrained to introduce him again. He has a happy faculty of making everybody feel well acquainted and *real good* at conventions. Sometimes one of his huge jokes makes some other good friend, at whose expense it was made, feel just a little touchy; but when he begins to know the doctor better, he will always find that the kindest intentions prompted it.



DR. A. B. MASON.

Now, then, while I am about it I want to revive the matter regarding the appointment of a superintendent for the International Bee Exhibit, to be held at the World's Fair in 1892. The suggestion emanates from John Aspinwall, and is a good one. I suggested Dr. Mason, and Prof. Cook seconded the motion; and when the

motion is put to a vote, at the Brantford convention, I hope the doctor will be unanimously elected. From his large experience in the line of preparing exhibits, and his ability to talk down comb-honey slanders, he is *the man*, in my humble judgment.

ERNEST.

BEE-HUNTING IN THE SIERRA NEVA DA MOUNTAINS.

BY A SUCCESSFUL BEE-HUNTER.

BEE-HUNTING always had a fascination for me. In my leisure time I took delight roaming through the woods in search of wild bees, tracking and lining them to their habitation.

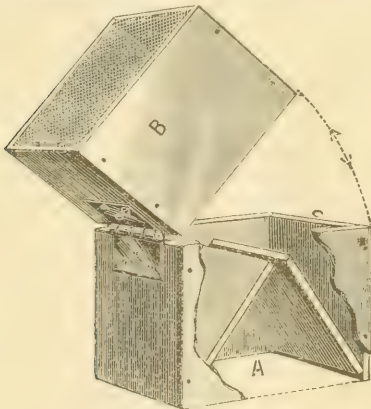
I was generally pretty successful in my search, frequently finding three or four trees in a day. I first became interested in bees by reading one of Cooper's novels, entitled "Oak Openings." It described a bee-hunter, his method of operating, lining, and angling for wild bees. I had long known where a swarm of bees came for water near our place. One afternoon, after reading Cooper's plan, I decided to try my luck at bee-hunting. Having arrived at the place, I had all necessary implements ready for business, and soon had quite a line of bees started. I noticed that some of them swerved considerably to one side, owing to a heavy growth of young firs being in their line of flight, while others went directly over them. Having bees working on two combs of honey, I ventured to move one comb, containing perhaps 25 bees, about 100 yards to one side. After filling up they circled around a little, marking the location of the honey, and then took a direct line to a clump of old dead cedars at the bottom of the cañon, where those that had taken a direct line from the first place went. Thinking that the tree must be near where the two intersecting lines met, I gathered up my implements and started down the mountain-side. Arriving at the clump of dead cedars, and making a thorough examination, I soon found the tree. They entered a small knot-hole about 40 feet from the ground. The next thing on the programme was to get the tree down and see what it contained. On going home I returned with axes, wedges, and saw; and after two of us had worked a couple of hours we had the satisfaction of seeing the tree tumble to the ground. It burst open where the bees had constructed their hive, throwing bees, honey, and brood out in wild confusion. We had no difficulty in taking all the honey, and did not receive a single sting. The tree contained upward of a hundred pounds of honey, seventy pounds being beautifully white clear honey. The rest was mixed with bee-bread. I undertook to save the bees, but, not knowing much about them at that time, I made a failure of it.

DIFFERENT PLANS AND METHODS OF BEE-HUNTING.

Cooper's method of bee-hunting is as follows: First get a small light-colored glass or tumbler, transparency being necessary in order to watch the movements of the bee. Find a bee to suit you, and place the glass over it, flower and all, placing your hand underneath to keep the bee from escaping from the bottom. You must have a small empty piece of honey-comb, and some thin honey to pour into the comb, drone comb being best. After obtaining your bees, place your piece of honey-comb on some level surface, and set your bee and glass over the entire comb. Next place your

handkerchief or hat over the glass, making a darkness like that of the hive inside the glass, and then the bee will immediately settle on the comb and commence filling up on the thin honey. While the bee is intently occupied in filling itself, remove the glass and go off to one side, so you can have a better chance to observe the movements of the bee when it commences to circle. The first few circles will denote the direction of the hive, and each succeeding circle will swerve more and more in that direction, until finally, when on the last circle, it will strike off in a direct air-line for its habitation, provided there are no clumps of trees in the way, when it will often swerve to one side, misleading the bee-hunter.

When angling for bees you must move a few hundred yards to either the right or left, and note the direction of their flight. Where the two intersecting lines meet, there will be the hive also. Instead of using the glass, as I used to, I now use a box made as follows: Take two pieces of $\frac{3}{4}$ -inch stuff, 6 inches long and 2 wide; two more pieces, 6 inches long and 4 wide. Use the 6x4 for sides, and the 6x2 for ends; nail together lengthwise. Next, take two pieces, 2 inches long, 2 wide, and $\frac{3}{4}$ thick, and put together thus: **A** Now bore a half-inch hole in the middle, where they come together, and insert it in the under side of the box, something on the principle of Alley's drone and queen trap. Now saw the box in two where this inverted V-shaped piece reaches, and put on a small pair of hinges. Next, nail a piece of wire screen across the top, about 12 meshes to the inch, and you are ready



WATKINS' BEE-HUNTING BOX.

for business. When you want to catch a bee, place the trap down over it, and the bee will immediately go to the top, where the wire screen is. You can venture to catch any number of bees that you want to. Now get your piece of honey-comb; open the trap, and set it in—no danger of the bees escaping, as they are too intent on trying to get out through the wire screen. Close the trap and place a piece of cloth over the screen to darken it, and make the bees settle on the comb. When they are occupied in filling themselves up, open the trap about half way, in order to let the bees that are filling themselves get out. When you have found the course of two or three bees, close the trap and move a few hundred yards further along. By this method you can soon find any bee-tree.

S. W. WATKINS.

Placerville, Cal.

(To be continued.)

CYCLOPEDIA SCIENCE NOT ALWAYS RELIABLE.

PROF. KOONS HAS SOMETHING FURTHER TO SAY IN REGARD TO APHIDÆ, AS SUGGESTED IN MISS QUILLIN'S LETTER OF NOV. 1.

MISS QUILLIN was unfortunate in two respects, at least, in her selection of authority on aphide, as printed in GLEANINGS for Nov. 1st. In the first place, she went to a very unreliable source, which in this case is about as trustworthy as the statements concerning glucose being extensively fed to bees, as quoted from the American Cyclopædia in GLEANINGS of July 15th. The fact is, that much of the science, so called, in our cyclopædias, is compiled by men who glean from all sources—good, bad, and indifferent, and who are entirely incompetent to judge, either of the accuracy of the statement or the reliability of the source gleaned from; but they conclude that, as they are found in print, the statements must be true.

I am constantly compelled to remind my students that the science found in the general press, the daily, weekly, and monthly periodicals, is very unreliable. As for myself, I never feel safe in accepting a scientific statement unless I get it over the name of a well-recognized authority, or in a book from one of the masters in that special department. Until within comparatively recent years, science was in a very confused state, and, indeed, is still so in many respects, some fact being mingled with much fancy; but out of this "scientific Babel" a more reliable literature is slowly growing.

Webster's Dictionary was found to be so incorrect in many of its cuts and definitions that it is now being revised by a number of specialists. For example, one takes all the chemical words, another all the botanical, another those of a physiological character, and still another the zoological, or architectural, or law, etc., each being a well-recognized authority, and standing high in his profession; and thus we shall soon have a thoroughly reliable book.

Again, besides going to an oft-unreliable source, Miss Q.'s statements, when secured, were not entirely correct; and I am constrained to call attention to it because GLEANINGS, doubtless, is read by many who are interested in hop culture, and consequently in the hop-plant louse. The true history, as recently worked out, is as follows:

The eggs are deposited on the *plum* in the fall by perfect wingless females. In the spring, as the leaves put forth, these hatch into wingless *agamie* females; that is, females that can reproduce without the aid of males; and these bring forth a generation, the *second* wingless like themselves. The third generation, which appears during the early days of June, are *winged* *agamie* females, and these migrate to the *hop*, which by this time is far enough developed to furnish food to the plant lice; and these, after going to the hop, produce the fourth generation, which are again *wingless*, and these in turn produce other wingless forms, and thus on through the summer, generation after generation, till late in August or early in September, when a generation of winged forms, about the twelfth of the year's product, are brought forth. These, too, are *agamie*, as all preceding have been; also at this time all those produced by the surviving members of previous generations, even as far back as the fifth, have *wings*. In other words, all those pro-

duced late in August or early in September, are *agamie winged* females, no matter from what generation they come. Then the very late members of the twelfth generation, late in September, are winged *males*. The winged females, just previously produced, fly away to the plum, and there begin to produce, not agamic, but perfect wingless females, which are full grown by the last of September, when the winged males, above mentioned, fly to the plum, where the perfect wingless females are, and here they mate, and winter eggs are soon deposited about the base of the twigs, and thus provision is made for the same round of life-history the following year. It seems that, if the perfect wingless females of this last generation are deposited upon the hop or any other plant except the *plum*, they will not live, the latter being necessary to their development.

In the life-history as above given, we find an illustration of that wonderful adaptability so often met with in nature. These little creatures have no use for wings in the spring till the *third* generation is produced, and the *hop* is ready to receive them; then after the migration, no further use for them till fall, and it becomes necessary to return to the plum for a late fall, winter, and early spring abode. Nature is not prodigal in her resources, producing only that which is necessary to carry out her designs, giving wings when needed; but when not required, they are not developed. Often it is difficult to interpret those wonderful adaptabilities in nature; but here, at least, we may conjecture why this remarkable life-history. The hop-vines die, and are likely to be removed and burned, or otherwise destroyed—perhaps made into a compost-heap; and if the plant-louse eggs were left upon these, it would be only by mere chance that they would escape destruction; and even if they did escape, the young, when hatched in the spring, would not likely be where they could get suitable food; hence a wise Creator ordained that the winter eggs should be left where destruction would be less likely to overtake them, and where the young would have fresh leaves to feed upon when hatched. Indeed, here, as so often everywhere, the devout student of nature may exclaim, "All thy works are truly and wonderfully made." B. F. KOONS.

Connecticut Agricultural School, Storrs, Ct.

Friend K., we are exceedingly obliged to you for giving us such opportune help in making this complicated matter plain. It has seemed to me a sad thing that our cyclopedias should teach so much error and hearsay. I did not know before that Webster's Dictionary was open to the same charge—at least to any considerable extent. By all means let well-posted, honest men, correct these matters, each in his separate line of work or industry.—In regard to the hop-insect, I want to say to our readers that the hop-growers have been for years almost on the verge of bankruptcy because of the depredations caused by this mischievous little insect. All efforts to combat the foes seemed unavailing, because they came from such mysterious sources at a certain season of the year, and then disappeared as mysteriously as they came. Burning the vines, and every thing of that sort, of course was futile. It did not reach the root of the matter at all. When some professor, I have forgotten his name, first declared that the in-

sect commenced on the wild plum, it seemed to be too wonderful to be true; and the scientific world rejected it as a wild speculation. It is now, however, universally accepted and recognized as true. People who refuse to accept the Dzierzon theory in regard to the natural history of the honey-bee may well be deemed excusable for finding it hard to believe that this hop-insect goes forward for several generations without any males at all. The matter is so complicated, that I confess I never clearly understood it until I read Prof. Koons' explanation as above. The italics are my own. I have taken this liberty, which I am sure the professor will excuse, because I found it so difficult to understand, until I had studied out and decided what words needed to be emphatic.

TREATMENT OF THE INSANE.

A POSTHUMOUS ARTICLE FROM THE PEN OF THE
LATE MRS. MAHALA B. CHADDOCK.

AFTER the death of our correspondent and friend Mrs. Mahala B. Chaddock, we began to hunt around amongst our unused MSS., which, though meritorious of themselves, were, for lack of space at the time, crowded out. We came across the following article, written some time since, and we are glad to give it insertion, as it is a true index of Mrs. Chaddock's real character, and of the philanthropic spirit which actuated her through life. This posthumous production, though exceedingly interesting and valuable in itself, will be read with melancholy interest now.

Editor Gleanings:—

For several years—ever since a friend of mine spent a year at the Jacksonville Insane Asylum—I have been trying to think of some way to help these unfortunate people; but I did not know what to say—that is, what I had better not say. Of the overcrowded condition of the insane-asylums in Illinois, and the wretched treatment that the chronic insane receive at most of our poorhouses, I will not speak, but point out the better way that Wisconsin has cleared out for herself, and which we may all walk in if we are not too bigoted. My information is obtained from the article mentioned, and from pamphlets sent me by A. O. Wright, Secretary of the Wisconsin State Board of Charities and Reforms.

Wisconsin has about 2600 insane, increasing at the rate of about 167 a year. These insane are provided for in the State and city hospitals, and in sixteen county asylums for the chronic insane. The improvements in the care of the insane consist in the doing away with restraints, either by mechanical appliances or by narcotics; separation of the chronic cases from the others; increased liberty, and the substitution of wholesome labor for idleness. These county asylums have been in operation (with two exceptions) for six years. These county asylums are managed by local authorities, but under the constant and close supervision of the State. The buildings are of brick, very plain, solid, and comfortable, and are of a size to accommodate not less than 50 nor more than 100. A farm is needed for economy in maintenance; and to fur-

nish occupation for the men, about four acres for each inhabitant. The fact is recognized, that idleness is no better for an insane than for a sane person. All the outdoor work is done by the men, the housework by the women.

Experience shows that three-fourths of the chronic cases can be furnished occupation of some sort, greatly to their physical and moral good. They are less nervous, and need less restraint when occupied with work, and sometimes a perfect cure is effected. One attendant to every twenty insane persons is sufficient. These asylums are as open as a school; no doors are locked, no bars to the windows, but the glass frames are of iron, painted white; no pens made of boards. The inmates are free to go and come at their work, with no other restraint than the care of the attendant. These asylums are *homes*, not prisons. The great thing is to provide occupation. In the county asylums of Wisconsin, about one person in a thousand is in restraint or seclusion each day. The idea is, that the insane are diseased, and that they need occupation, amusement, and kindness. The practice of this idea has been so successful that it must affect the treatment of the insane all over the country. The secret of providing work is to buy as little material, and hire as little labor, as may be; let the women make the clothes, and the men do the outdoor work without the aid of machinery. Some of these county asylums are almost self-supporting, and all of them save money to the counties, compared with the old method. The State has not lost, and the counties have gained; and the insane in these county asylums have been as well clothed, lodged, and fed, as in the State institutions, and have more freedom and personal comfort, and a better chance for improvement. The new system considers the education of the chronic insane as an important part of the treatment—education of the mental, moral, and physical faculties in habits of order, propriety, and labor. By their means wonders have been worked for the insane.

Now, perhaps you will ask why I write this for GLEANINGS. Because GLEANINGS is a *humanity* paper, and *this is humanity*. Everybody is interested in the treatment of the insane; and then, see! they have a difficulty to find suitable employment for the men in winter time. Then I thought of bee-keeping. Seems to me there could be no more appropriate work than the keeping of bees and raising of honey. How good and how handy the honey would be for the asylum tables! and the men could make the hives, the foundation, the crates, and sections, in winter time. I do not know whether Wisconsin is much of a honey State or not. There are plenty of readers of GLEANINGS who *do* know. I have sent for the names and postoffices of these sixteen county asylums; and whenever you feel like sending out sample copies, you will please remember those poor unfortunates in the Wisconsin county asylums.

Vermont, Ill.

MAHALA B. CHADDOCK.

Although GLEANINGS has had many kind words and many compliments, I do not know that it ever received any thing in that line that is really a *higher* compliment than the expression in the concluding paragraph above: "GLEANINGS is a *humanity* paper;" and I think the readers of GLEANINGS will agree with me in deciding that our departed friend was a *humanity* writer.

Like the rest of us she had her peculiarities and perhaps some eccentricities; but through all her writings there shone out clearly and unmistakably a love for her fellows. There was nothing narrow and contracted in her ideas and teachings. Her sympathies were as broad as the universe; and in the above article her sympathy for this special class of poor afflicted humanity shines forth almost Christ-like. May God be praised, that Wisconsin has set an example before her sister States. The above was written before my visit to Wisconsin, therefore our poor friend did not at the time of writing know what a grand State for bee-keepers Wisconsin is. The idea of interesting the insane in bees is grand. I have for years been well aware that I can, by taking time, interest and enlist the sympathies of almost any individual in the habits of bees. A child, even one of tender years, soon becomes enthusiastic, and so will elderly people. I do not know that I have ever tried the effect on one whose mind was diseased; but I feel quite certain that bees and outside air will accomplish good results if any thing can. Here are a few words from our good friend Mrs. Harrison, who, perhaps, knew Mrs. Chaddock better than almost any one else who reads GLEANINGS.

Dear Mr. Root:

To-day, in sorrow and sadness, I stood beside the finely molded clay, which for nearly forty-six years had been the home of the immortal spirit of Mahala B. Chaddock. Her freed spirit, borne on wings of infinite love, has sought another clime. She, "being dead, yet speaketh." "Be ye therefore ready also; for the Son of man cometh at an hour when ye think not."

MRS. L. HARRISON.

Peoria, Ill., Nov. 14, 1889.

"Being dead, yet speaketh." That is exactly it, dear Mrs. Harrison. Our departed friend's words are yet in print, and before the multitudes, and good is going to come from them. Now, let us as readers of GLEANINGS see what each and every one of us can do to further the grand thought in regard to more intelligent care for the insane. As I read the article my mind moved vividly from one to another in our county infirmary. I thought of their farm, the crops they have raised, their pretty vegetable garden, and the earnestness with which the inmates have delighted to show me their work, and the success of their plans. I am very glad to say that our county infirmary is located on one of the finest farms in the vicinity. It is thoroughly underdrained, and producing good crops. Who knows how soon *we* may need the kind offices of some good Samaritan in just the very line of Mrs. Chaddock's last words to us? We close with a brief letter from her lonely companion.

Mr. Root:—I have sad news for you. My wife, Mrs. M. B. Chaddock, is dead. After a lingering illness of five weeks she departed this life at 8 o'clock P. M., the 12th instant. About the 1st of October she took a severe cold, followed by a remittent form of fever, complicated with other troubles of the body, of long standing. About ten days before her death she had a severe attack of the pleurisy, then a sudden change to pneumonia of the worst type. She suffered much pain and distress of body,

seemingly, though she seldom complained, and thought she would recover, till within a few hours of her death. Myself and family are very sad, and sorely bereaved; and it is hard for me to realize that so valuable a life must be taken from us. Toward the last she seemed unconscious of suffering, and passed quietly away. Funeral service yesterday at 1 o'clock P. M., in the Presbyterian church, Ipava, conducted by Rev. Mr. George, of Lewiston, Ill., after which we laid her to rest in Ipava cemetery.

JOHN CHADDOCK.

Vermont, Ill., Nov. 15, 1889.

Dear brother, our sympathies and our prayers are with you. May Christ Jesus sustain and comfort you in this your great affliction; and may you, too, be cheered by the beautiful but brief little text given us by our friend Mrs. Harrison: She "being dead, yet sleepeth."

THE ALFALFA OF ARIZONA.

AN UNFAILING SOURCE OF HONEY; MANNER OF IRRIGATING.

DEAR FRIEND ROOT:—To think of *you* paying us a visit! well, well! Your brother and I have often talked about the matter, and wondered if we could not in some way (now that the ice is broken, and you have made a visit to California) induce you to pay us a visit here in this incomparable country, a paradise for bees and fruits. It is the great sanitarium for all lung diseases, and the most healthful climate it has ever been my lot to experience, though I have lived in several States said to have the healthiest. This is a land whose bright sunshine is far ahead of any thing else in these United States, and whose moonshine surpasses even that of far-famed Italy.

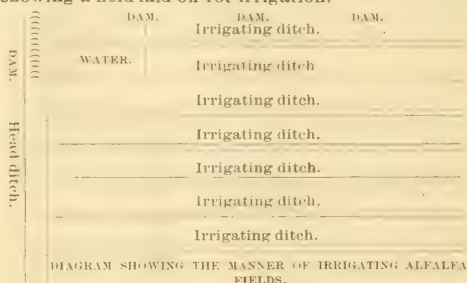
You ask if we get large yields of honey every season. Yes. We have never had what you would call a poor season; but this season has been a poor one for us. The mesquite was almost a failure here, and that is our finest honey, it being as clear as water, and very fine flavored. When granulated, it is as white as butter. Alfalfa is not quite clear, but is what is commonly called white honey; but it is clear enough so that you can see a pin at the bottom of a gallon bucket, and that is clear enough for any purpose. Alfalfa honey is a certainty every season; and right here I will say we have never before had any thing like the army-worm. It was not really a grasshopper, though we called them grasshoppers. They were a very small beetle, or bug, that could hop somewhat less than a flea, and lived entirely on the alfalfa bloom during one crop; and when the crop was cut we saw no more of them.

When we run our alfalfa fields for hay alone we cut it six times. Last year I made four hay crops and one seed crop; this season I made one hay crop and two seed crops, without irrigation.

We usually irrigate every time we cut the crop off, which I think is unnecessary. I think we could make just as much to make two crops and irrigate, though some people think the ground must be flooded every time. I have seen some irrigate twice for every cutting.

To irrigate the ground there are two ways practiced here, quite similar in some respects, owing to the length of the lands. If the lands are more than 220 yards in length we make ditches every 20 yards, the full length of the field, and turn the water on

at the upper end of the land. When it is flooded for about 100 yards we put the greater part of the water in the first ditch and make a tappoon, or dam, and turn it out on the land at the point where the water has run to on the land; and when it has run another 100 yards on the land we make another tappoon in the ditch just where the water on the land has got to, and break or take out the dam above, and let the water come down and go on the land at that point, and so on till that land is irrigated; then we go up to the head and turn the water to the next land, and shut it off the first. I send a diagram, showing a field laid off for irrigation.



When the lands are short we simply throw up high strong borders every 10 yards, and then all we have to do is to turn the water on at the upper end and let it run till it floods the whole land, then turn it on the next, and so on till the whole piece is irrigated.

Land set to alfalfa is valued at \$100 per acre, because it will pay the interest and taxes on that amount. Alfalfa does not bloom in our winter sufficiently to do much good as bee pasturage. We have not tested sufficiently to answer your last question.

JNO. L. GREGG.

Tempe, Arizona, Nov. 15, 1889.

ALFALFA AS A HONEY-PLANT.

SOME IMPORTANT SUGGESTIONS FROM THE ALFALFA FIELDS OF KANSAS.

MR. ROOT:—About a year ago, while preaching in Hiawatha, Kan., I became acquainted with Judge Dickinson, who is a lover of bees, and a warm admirer of GLEANINGS; and through him I became a subscriber and reader of your journal. While I am not a beekeeper, yet I have always had a strong desire in that direction, but have never just seen my way clear to embark in the business. In the last issue of GLEANINGS I saw an article from Arizona, headed "Alfalfa and Bees," which dealt with a subject I have been interested in for some time. I have often asked, "Can bees make honey from alfalfa?" but never happened to ask any one who knew. If alfalfa is good for bees to work on, and can make good honey from it, then indeed in this Southwestern country we must have the best territory for bees there is in the United States; yet in the whole of Southwestern Kansas I do not know of a stand of bees. Here in the vicinity of Garden City we irrigate, having now adjacent to Garden City fully three hundred thousand acres under a most perfect system of irrigation; and this vast territory is fast becoming an alfalfa field. We now have in Finney County several thousand acres in alfalfa, and fully as much more will be sown in the spring.

Over ten thousand bushels of alfalfa seed will be shipped from Garden City this year. Now, this clover (as it is sometimes called) is in bloom from May 10th until in November. We always cut four crops of hay per year from it, and quite frequently five, depending entirely as to whether we have an early or late spring. From the time we cut the first crop in the spring until winter comes on, our alfalfa is ready to cut every thirty days, and we get from seven to ten tons per acre during the season. Unlike red clover, alfalfa, when once set, is good for all time. So long as we irrigated it, it became thicker every year; and if a person were handling bees there would be no trouble in having a continuous bloom from them from May 10th until in November, which, it seems to me, would certainly pay well.

From those who have experience, I hope we shall hear more through your excellent paper, as to the quality of honey and the amount that can be made from alfalfa bloom; and if it is profitable, we shall hope for some one who has had experience in the business to bring some bees here and utilize the sweetness we are each year wasting.

In Finney County we have alfalfa fields ranging from 50 to 350 acres. The hay is used to feed stock. Alfalfa hay will fatten cattle about as well as corn, and is much cheaper, and requires less work than corn, even in the best corn countries. We winter our hogs on alfalfa hay and water. They will eat it as well as cattle will eat timothy hay, and keep in good stock shape on it. We can run ten head of hogs per acre on green alfalfa, and make nine-months-old pigs weigh from 200 to 225 pounds. Many of our farmers are using their whole farms in alfalfa and hogs, cutting only enough hay to winter the brood sows. While in all these ways alfalfa can be used, yet the part the bees utilize goes to waste. Let us have some apiaries here. Good alfalfa land under irrigation is cheap—can be purchased from \$6 25 to \$12.00 per acre, owing to location. Alfalfa seed is worth \$3.00 per bushel. One bushel of seed will sow three acres. It costs from \$1.00 to \$1.25 per acre to irrigate during the whole season, so that, at a cost of about \$1800, 160 acres could be set in alfalfa for bees, and at much less expense, if the party does his own plowing and sowing; or if the party does not desire to purchase land and go into the alfalfa business, let him bring his bees to gather the honey from the alfalfa already growing. Surely no one will object.

Now, Mr. Editor, I hope you will excuse me for having introduced myself to you in such a long article; but I felt like writing this much, for I am interested in this subject; and if you consider this worthy a place in your paper, I shall be pleased.

Permit me to say, I am wonderfully well pleased with your publication, both for the many useful suggestions it gives—the general information with which it abounds, and especially am I well pleased with its high moral tone. A. C. McKEEVER.

Garden City, Kan., Nov. 16, 1889.

Friend M., we are very glad indeed to get the facts you furnish us. It is going to be a pretty hard matter for me to make a trip to Arizona, at least very soon. But I could skip down to *your* locality with but comparatively little trouble. The first thing, however, is to find some live bee-keeper in *your* vicinity, and have him give this matter a careful test. Come, friends, ye who hail

from the locality mentioned, stand up and tell us what you know about it. During my trip to California I was constantly on the lookout for alfalfa. Perhaps it was not the right time of year. For some reason I have never yet seen one solid field of alfalfa of even 25 acres. If so, I did not know it.

“OUR HOMES.”

AN INTERESTING ARTICLE FROM THE PEN OF T. B. TERRY, WHICH EVERY FATHER AND MOTHER SHOULD READ.

FRIEND ROOT:—Our minister called on us last Sunday for aid to establish a good reading-room for the boys and young men who hang around town nights. He didn't put it in just those words, but that is the truth of it; it is for the idle young men who hang around the stores and saloons evenings. This matter has been running in my mind all the week. It has seemed to me that prevention would be a thousand times better than the cure in this case. There should be no call for a young men's reading-room in a little town the size of this, where almost every one is comfortably well off. There should be no occasion to fix up a pleasant room to try to draw the boys in and keep them from the saloons and other such places.

How should we manage to prevent it? Why, in the first place by making home the brightest and most cheerful place possible, and providing good books and papers suitable for the boys and young men as well as the older people. I think we ought to study to do this, and to encourage the young folks to have their mates visit them and have a good time at their own homes. Then I would, from the very beginning, *never* allow a boy to run around town nights. Pray tell me why he should any more than his sister? No decent girls ever hang around the saloons and shops and stores. Such a thing is never thought of. Wouldn't we have thought our minister crazy if he had wanted help to fit up a reading-room for *girls*? Is a boy any better able to stand temptation than a girl?

It is beyond a doubt a duty required of us parents to keep our boys at home nights; but it is hard to do this, entirely against their wills; therefore as a help I would make home pleasant—so pleasant that it would require but very slight authority to keep them there—often, perhaps, none at all. I remember once visiting at a farmhouse where the mother expressed much anxiety because her only son went to town nearly every night. They were moderately well-to-do farmers. But I could hardly blame that bright son for wanting to get away from the place where he ate and slept. Wasn't it a good house? Oh, yes! quite good, and well furnished; but it was wretchedly warmed and lighted, and there wasn't a book or a paper that any boy would care to look at. They cut their wood each day, from hand to mouth; lived around the cook-stove, mostly, and had one poor little lamp burning that hardly gave more light than a candle. This particular case interested me a good deal. I remarked to the mother: “That is a nice new carpet you have in your best room.”

“Oh, no!” she said; “we have had that twenty years!”

Do you know what thoughts came to my mind?

Why, that those parents cared more for their carpets and furniture, and wood and oil and money, than for that only son—at least their actions seemed to make it appear so to an outsider. Now, in contrast, go up to the "Center" with me and see the brilliantly lighted saloons and billiard-rooms where all is warm and comfortable. Were they as stingy with their lights and fires and other comforts as some parents are, how much of a crowd would they draw? Our saloons and other bad places where boys congregate at night do not seem to love darkness better than light, even if their deeds are evil. Or, if they do love it better, they know what will draw in a crowd, and they work from policy. Why should not all of us who have boys or hired men work as persistently to save them as the enemy does to entice them away? Now, these parents spoken of above were plain, simple people, who started with nothing, and thus got in the habit of being very economical, and they failed to see that their son and hired man and daughters were not being cared for any better than so many head of cattle. Why, I just ached to go and buy a big hanging lamp for their best room, and a larger heating stove, and \$25.00 worth of good papers, magazines, books, and games, and tell these young people: "Now have a good time; invite in your mates, and enjoy daily the best we have got." I couldn't possibly sit still and see my children go to the bad, and talk about what a "trial and affliction" they were to me.

In our own family we never attempt to economize in either lights or fuel. We have three large rooms opening together with double doors, and a large hanging lamp in each one, and one large base-burner heats them all. We usually use all these rooms—the best in the house. The lamp in one room, particularly for reading, gives a light, it is said, equal to 80 candles. I know it is brighter than ordinary daylight. We burn about two gallons of oil per week, at this season of the year. Bought by the barrel, this costs about 20 cents. Rather than try to save by burning less lamps, I would wear my old overcoat another winter; but there are very few people who can not afford this much oil. What is \$5.00 by the side of a brilliantly lighted house all winter? You might call us extravagant in the amount of fuel used. We bought seven tons of anthracite coal for our big heating stove this winter, at a cost of \$5.40 a ton. Well, think a moment. Aside from a pleasanter home, think of how much less danger there is that the health of my wife and daughters will be injured, where the whole house is warmed up. Plenty of pure air is essential to the best health. When I see a whole family sitting in one ordinary-sized room, I can not help but think that the doctor may take more than they save on fuel.

The season is now at hand when our homes need the most lighting and heating. May your readers think over these things; and if there be any truth in what has been said, act accordingly. Now is the time, also, for getting a supply of books and papers for the year. Wife and I visited our friend John Gould the other day. I want to tell you one thing that "John" has done that calls for our highest praise. When he was married, some ten years ago, he was in the habit of using tobacco. I suspect his wife didn't like it; but be that as it may, John figured up what his cigars, etc., had cost him per year, and found it was about \$35. Then he said: "No

more tobacco for me hereafter; but I will each year spend this \$35.00 for new books." He has done so, and now has a \$350 library. He is proud of it, as he should be. How much better than to have used up the money in *worse*, than useless smoking and chewing! How many young men who read GLEANINGS will go and do likewise?

To the older ones: When you are getting your papers and books for the year, get some paper like *The Youth's Companion* for the young folks, and also some good story-books such as the children like. Remember what you liked to read when you were young. I think I may safely say, that not one farmer's family in ten takes any paper or magazine, or buys any books *especially* for the young people. T. B. TERRY.

Hudson, O.

Friend T., while I do not like to throw cold water on any project for reaching our boys, I must say that I have had just about the same feeling, for a good many years, that you have. The matter of a reading-room for young men has come up a good many times here in Medina. In fact, it usually comes up after each of our revivals; but I confess that it has seemed to me, especially in a town of our size, as if it were hardly just what *we* need. To make a success, a room should be procured in the busy part of the town. It ought also to be of convenient access to the street; then it must not only be warmed and lighted, but somebody must be on hand to look after it; if not, it will soon go to ruin. All of these things are expensive; but even after the expense has been incurred they are apt to be deserted. I visited many reading-rooms in California; and as a rule the papers and magazines were old and out of date because somebody had carried off the late ones, and there was a good deal of disorder besides. At one time in our town they had the money raised, and were almost ready to start, when so much disagreement arose in regard to the character of the amusements to be brought in that it fell through. In fact, a considerable class of people insisted that the boys should be allowed to smoke cigars in the reading-room. Others thought that a smoking-room adjoining would be the thing. Now, where in the world is a better place to settle all such perplexing matters than in the boy's own home? If the father and mother, and brothers and sisters, can not settle it amicably, who else shall do so? In regard to making a home pleasant, my late hobbies have been, as you know, plenty of pure air and pure water; and as my eyes begin to fail, I am just ready to second with a loud amen your remarks in regard to plenty of light during these long evenings. And when we begin to get old enough to feel twinges of rheumatism, we surely ought to be ready to second your suggestions about good-sized rooms well warmed. In towns and cities large enough to make it worth while to support a reading-room, I would by no means object; but in the majority of cases I think our homes are the places to have our reading-rooms. Let the boys and girls read together; let them invite in their friends; for what shall it profit a man if he gain the whole world and lose his own soul?

or, if you please, lose the soul or the affection, and influence over his sons and daughters? There is not a father or a mother anywhere but that has a true love and regard for their children; but, alas! they often wait until it is too late. Now, then, dear friends, shall we not go to work and fix up these reading-rooms, or, rather, fix up the rooms we live in? Go without almost anything else rather than to scrimp or discourage the children; and by all manner of means chop off the tobacco whenever it in any sense stands in the way of a \$350 library. May the Lord bless our good friend John Gould for the example he has set us. Perhaps he has told us of it himself in his writings in the *Ohio Farmer*; but if so, I have never noticed it. Who is there among our readers who will stand by him in giving up tobacco for the sake of a good library? Come, now, let's see you stand up and give us your promise through the Tobacco Column.

MOVING BEES.

THEODORE O. PEET TELLS HOW HE DID IT.

IN reading our text-books, we are told it is almost impossible to move bees less than a mile away from their old stands. As I had occasion to move mine this spring only about two hundred yards, I was at first a little puzzled as to how I should do it. But "necessity is the mother of invention;" and as I possess some little genius, I set myself to thinking out how I should do it, and with the following result.

A year ago last spring I moved from Arlington, N. J. (which is a small country town adjacent to Newark, and only about one hour's ride from my business in New York), to Brooklyn, N. Y. I had two very nice swarms of bees which I desired to keep possession of; and as I could not take them with me to the city, I obtained permission from a neighbor, who kept a number of swarms, to place mine in her yard. During the spring they swarmed, and either went away or were gathered by my neighbor, thinking they were hers. I did not care particularly about this, as I only wanted to keep my two colonies intact till I was ready to take them again myself. This last spring I moved back again to Arlington, and so wanted my bees back again. My new home is only about two hundred yards away from my neighbor's, as I told you before; but I wanted my bees close by where I could look after them with as little trouble as possible, as I have very little time now after business, my whole time belonging to my employers.

On examining the colonies, I found one of them was queenless; the other one was in good condition, the queen laying rapidly. I immediately sent to a queen-breeder and obtained two queens. The extra one was to start a colony for my next-door neighbor, who had at one time kept some, but had lost them. As soon as the queens arrived, I took the queenless colony and divided it, giving each queen two combs, and the bees that were clinging to them, together with a comb of brood from the colony that was all right. I put one of them in my neighbor's attic, and the other one in my own attic, arranging to let the bees fly out of the window. As soon as I took this colony away from the

yard, I moved the other colony (which stood about three feet from the one removed) about where the space was between the two. This I did to catch any bees that might wander back to the old spot. It worked admirably, and I lost very few; in fact, I think none were lost entirely. I kept robbing the old colony, with the laying queen, of hatching bees, replacing with empty combs till the two new colonies were thoroughly established, which soon came about. Now, the question, "How should I get the other one home?" arose, and this is the way I did it: I just picked it up and carried it, hive and all, and set it in my yard. I then took a shipping-box that held four frames, and put two frames of empty combs in it, and set it on the old stand. The next night, after dark, I went and got it, brought it home, found a couple of handfuls, or, say, about a pint, of bees, clustered on the two combs. These I quietly slipped into the old hive, and took the box back again with one frame of comb in. The next night I went after this, and found only half a dozen bees in it. I concluded I had moved them successfully, and did not set my trap again. All these are doing well now. I did not get any honey, but that was on account of the almost incessant rains during the season of bloom, and not the fault of the bees or moving them.

THEO. O. PEET.

Arlington, Hudson Co., N. J., Nov. 19.

Friend P., if you take a queenless colony, or one that has been some time queenless, and give them a queen, or, if you choose, divide them and give each half a queen, they will be pretty much in the condition of a new swarm, and they will stick by their new queen, no matter where you put them. In the other case, where a pint of bees went back to the old locality, you had about the same success that we do as a rule. I think, however, that perhaps as many more scattered about and went into other hives. I am surprised, however, to find that a second night you found only a few bees. Most of my experience resulted in finding just as many the second night, the third, and so on; and I decided that

A bee removed against his will
Is of the same opinion still,—

unless you give them a new queen, or bring some unusual influence to bear to make them adhere to a new location.

EXTRACTORS REVOLVING FOUR OR MORE COMBS AT ONE TIME, ETC.

OUR FRIEND J. F. M'INTYRE GIVES US SOME IMPORTANT FACTS.

IF our readers will turn to page 842, Nov. 1, they will be able to read the following more understandingly:

M'INTYRE'S REVERSIBLE EXTRACTOR VERSUS THE TWO-FRAME NOVICE.

Friend Root:—GLEANINGS is just received. The extractor cut is very fine, and shows the reversing gear correctly. The only fault I can find is, that it doesn't show the chains that keep the baskets from swinging out too far, and the tin braces that support the wire cloth in the baskets. With regard to your editorial comments, I suppose the inside gear of my extractor will weigh four times as much as one of yours, yet my wife (who is not very strong and weighs only 110 pounds) says she will take hon-

ey out of the combs, uncap and extract, against any of your experts, he to use a two-comb Novice. I weigh 170 pounds, and can uncap and extract from 250 to 300 pounds per hour, according to the amount of uncapping to be done, and the thickness of the honey. I should like to know how much one of your experts can extract in an hour with a two-comb Novice. When I came to California, Mr. Wilkin was running this apiary with two Novice extractors and four assistants. I run it now with one assistant, and extract as much honey per day as he did with four. After a vast amount of experimenting, I find the best thing to prevent combs from breaking in any extractor is to put only eight combs in a ten-frame super. The reason why so many break is because, in uncapping, the comb is cut down to or below the level of the frame. If the comb is $\frac{1}{4}$ inch thicker than the frame after the capping is off it will seldom break. It is no more trouble to put combs in a reversible extractor if the baskets stand with the side toward you; and as they do not come out until empty, it is less trouble to take them out. Non reversible extractors have not been handled by dealers in this county for several years. J. F. MCINTYRE.

Fillmore, Cal., Nov. 11, 1889.

Very good, friend M. Such facts as you give from actual work are exactly what we want; and even if they do upset and controvert the opinion I expressed, we are all the more glad to get them. From the above it would seem that I am entirely mistaken. But before I give up I should be glad to hear from others who have used extractors swinging four or more combs at once. Perhaps I may say to the readers of GLEANINGS, that Mr. McIntyre is a remarkably bright, keen, young Canadian. His grounds, tools, and manner of working, reminded me vividly of friend Terry. Almost every bee-keeper has his notions in regard to implements and ways of working. I am somewhat surprised to find that a rather small woman like Mrs. McIntyre should succeed so well; but if anybody could take from 250 to 300 lbs. an hour with any extractor, I should think likely friend M. would be the man to do it. When they were soldering up their cans for honey, in order to fill a large shipment to go to Europe, you may remember that I told you that he in a very little time soldered more cans than an experienced tinsmith. If nobody comes to my aid, I will own up that I was mistaken. I am very glad of the point made, that heavy combs are broken by slicing off too much with the cappings. Since you mention it, I remember the same thing. Hurrah! here is a letter already, pretty nearly in a line with my position.

A REPORT FROM ONE WHO HAS USED THE STANLEY AND NOVICE EXTRACTORS.

In GLEANINGS for Nov. 1 you ask for a report of those who have had and used the Stanley reversing extractor. I have used one two years; and now that I have the Novice extractor, which I got of you, I do not expect to use Stanley's much, if any more, as we prefer to use yours. My extracting man calls the Stanley a "man-killer," as it requires so much more strength to operate it. If I were buying new, I would take the Novice, even at the same price (mine cost less than one-half, every

time. I have extracted from 150 hives, and know what I am writing about. O. R. COE.

Prattville, N. Y., Nov. 11, 1889.

CLOSED-END OR STANDING FRAMES.

IMPROVEMENTS IN FRAMES, HIVES, ETC.

NOW, then, Mr. Root, as you have evidently, from your own articles, and also from the contributions of others, published in GLEANINGS of late, been thinking that closed-end, or standing frames, have advantages, and are sought for, and actually in use by many successful bee-keepers (I don't include myself), I hope you will still continue the good work, and shortly give us another improved hive containing this principle in some form or other. I also hope that Mr. Vandeusen, Mr. Hetherington, Hawk, and many others, while giving their views, will mention particularly the difference of bees wintering in closed-end frames that fit closely to the end of hives, and those in standing frames having a space between the end of the hive and the frames, as with the ordinary hanging frame, as this is an important matter to bee-keepers in the northern part of North America (Canada is not yet in the United States, but may be about the time the international is held in Brantford).

As for myself, I have used several styles of hives with hanging frames since I first commenced bee-keeping, in 1863, and have still to-day one of the ten-frame Langstroth observing hives, made that year, in my apiary. I may also add, although somewhat foreign to the subject, that I purchased from father Langstroth, and successfully introduced an Italian queen to a colony of black bees, in the hive referred to, 25 years ago. But, to resume.

I finally settled, several years ago, on the eight-frame L. hive, without bevels, having a plain flat board, cleated at the ends, for a cover, with a full bee-space above the frames, the bottom-board being loose, and having a $\frac{3}{8}$ space on its upper surface for entrance, etc.

This hive, you will observe, is similar to your Dovetailed hive, and also very much resembles the old-style Heddon-Langstroth. Well, I liked it for all purposes, and still do so; but I wish something better, if it can be had; and thinking the closed-end frames had advantages not possessed by any other, you can not wonder that I lost no time in securing 25 of the new Heddon hives as soon as they were manufactured in Canada.

Without further reference to this hive at present, I will explain that I have entertained the hope of soon establishing an out-apiary, and, therefore, have the desire for some readily movable hive, and one that can easily be prepared for moving speedily and safely from one location to another; and while wishing to make this change, aside from the mere "fun of the thing" I wish also that it be done with as little expense as is consistent with securing the end in view. I am not prepared by any means to discard all my stock on hand, nor do I think it necessary to do so; still, I am well aware, that, the deeper the frame, the greater will be the difficulty in securing an easily manipulated frame, especially of this description, as I prefer them spaced $1\frac{1}{8}$ inches from center to center. I also am in favor of a reversible frame independently of the pleasure of having the comb securely attached to both top and

bottom bars; but whether or not it should be handled by the single frame or by the hiveful, depends on circumstances and the system followed out by the operator.

Now, Mr. Editor, by all means give us a closed-end or standing reversible frame and one suited to your Dovetailed hive as you now make them. There need be no unnecessary confusion in this respect, as all the purchaser needs to do is to state the kind of frame preferred in the brood-chamber. For myself I see no reason why the Vandeußen metal corner would not work well. It certainly will kill fewer bees than any thing else I know of; but whether the metal corners and the ordinary $\frac{3}{4}$ -wide frame, having the space between the end of the frames and the end of the hive is not as good for wintering and springing the bees as the closed-end all-wood ones, coming close to the end of the hive, I know not. This feature is certainly worth considering, apart from the propolis question, which, in this locality, is a very great nuisance in any kind of hive, and much more so in one not very accurately made.

In conclusion, I am glad you are going to make white-poplar sections, and all in one piece too; but if you can not do so without having the naughty corner on them, then by all means make them dovetailed. I have used the T super, and also the half-story wide-frame case with separators, and I am considerably taken up with your topless section-holders also, although I have not yet tried them.

F. A. GEMMILL.

Stratford, Ont., Can.

Thanks, friend G., for your suggestions. We have been doing, for a year back, just what you express the hope that we would do—that is, working toward closed-end, or, rather, frames standing at fixed distances, the same adapted to the Dovetailed hive. In the article in our issue for June 15 a hint was thrown out on page 514 by your humble servant, that we might in time work into the Vandeußen frames, and the idea is now beginning to materialize. From scores of letters—most of them unpublished—it is pretty evident that there is a demand for a frame that will be suitable for moving to out-apiaries, adapted to shipping, capable of being reversed, and one which will secure nearly all the advantages of a suspended frame. This frame, as nearly as I can so far see, seems to be the Hetherington-Vandeußen. A great many inquiries have come in, in regard to it since the initial article in the issue for June 15. In a private letter received from friend Hawk he states that he received likewise a great many letters concerning them. I may say, for the benefit of those who desire to test them on a small scale, that we shall put them on the market soon. I have just been through some experiences in removing bees to and from out-apiaries, and carrying them into the cellar. If I ever appreciated the advantages of a frame that would not shuck about, come off from its bearings when the hive was tilted a little bit out of level, or subjected to an unexpected bump or jar, I appreciate it now. Let me say right here, that I do not wish anybody to invest very largely in these frames when they come before the public. Test them on a small scale yourself; and if you do not like them you

will not have been to any very great expense. If you do like them, you will know what to do, of course.

ERNEST.

REPORTS ENCOURAGING.

ENCOURAGING FOR AUSTRALIA.

We are going to have a real booming season this year. Although the honey season has only just commenced in most parts, I have already extracted over 4000 lbs. of honey; and as there are about 6 months yet before the close, things look very promising. I shall very probably send you a report at the end of the season. I have now 150 hives of Italian bees. I have steam-power, and one of your \$30.00 saw-tables, for making hives, etc. I do a good trade in foundation, and supplies generally, and am 23 years of age, so I am progressing nicely.

I am mailing you a small lump of wax produced by our small black stingless bees. If you are any way interested I shall tell you more about them in the future.

H. L. JONES.

Goodna, Queensland, Aus., Sept. 26, 1889.

RED-CLOVER ITALIAN QUEENS, CARNIOLANS, ETC.

The fore part of the season was very poor for bees. They swarmed very little this year. Honey is scarce; but since August the bees have done well, and are in a good condition for winter. I have 26 stands at present. The three queens you sent to me last August are good red-clover queens. I received $4\frac{1}{2}$ lbs. of bees and two queens from J. Nebel & Sons, High Hill, Mo., the 6th of June, and they are red-clover queens. I have five stands of them, and they have gathered 675 lbs. of honey this poor season. I think they have done well. The blacks have done nothing here for me this season. I have two stands of Carniolan bees. I got the queen from S. W. Morrison. They are gentle, and good workers. My bees worked well on Japanese buckwheat, and I raised a nice lot of spider-plant seed. I think it yields more honey than any thing I have seen in this locality. I am giving the seed away to my neighbors.

T. OBERHITNER.

Deshler, O., Oct. 7, 1889.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MARKETING HONEY ON THE STREETS.

This has been a poor season here for bees. I am the only one that got any honey here this year. I had 500 lbs. from 12 hives, most of it extracted. I am selling it in yeast-powder bottles holding 9 oz., for 15 cts. a bottle, or two for 25 cts., or \$1.20 a dozen, wholesale. I stand on the market once a week. I have no trouble to sell it, because it is good honey. I generally sell about 7 dozen bottles in half a day. I go to market to-night with one of our truckers to Wilmington, Del., 15 miles. We start about one o'clock to-night. I bought five Carniolan queens this fall, and lost them all by introducing by a new plan given by the shipper. I wanted to give the Carniolan bees a trial next year, but will give it up, as I am a poor man and can not buy more.

S. M. HICKERS.

Delaware City, Del., Oct. 15, 1889.

THE COMPOSITION OF ROYAL JELLY.

I see it has been said in one of the back numbers of GLEANINGS, that royal jelly is but an accumulation of chyme, such as is fed to ordinary young brood. Inclosed I send you some information, from the English *Daily News*, that may throw some light on this interesting subject. This seems to support Mr. F. Cheshire's remark in "Bees and Bee-keeping," Vol. I., page 83; namely, that the "food fed to the very young grubs is extremely rich in nitrogenous substances, and this alone is the secret of the future development of the grub." It would be interesting to know if the experiment has been tried, of injecting, by means of a minute glass syringe, the further allowance of fully digested or young-brood food at the right time, so as to cause the queen to develop artificially, as it were. This would prove once for all in a most unmistakable manner how a queen is produced, and possibly start a new era in the queen-rearing business.

Nashville, Ore., Nov. 18, 1889.

J. T. SIBREE.

The clipping referred to is as follows:

One of the strangest facts in the social economy of a bee-hive is the way in which the development of the larvæ is directed by the workers. If the queen is removed, a new sovereign is promptly raised by the simple expedient of enlarging the cell and altering the food of a working larva. The food supplied to the grubs has now been carefully studied by Herr A. von Planta, whose results are extremely curious. The larval queen, he says, is fed during the whole of her time on fully digested material very rich in nitrogenous substances. Those which are to turn into drones are supplied for the first four days of their existence with a similar diet, but one which is even richer in nitrogen, and for the rest of the time this digested food is diluted by the addition of pollen grains and honey. The worker grubs are treated in much the same way. They receive for the first four days a food intermediate in composition between that of a queen and that for a drone. Then comes a change, and the food is diluted with a large quantity of honey without any admixture of pollen. This alteration is the determining point in the life-history of the insect; for if, at the fourth day, the cell is enlarged and queen food supplied, a queen will result; but if once the inferior diet has been begun it is impossible or very difficult to effect the change.

THE JAPANESE BEATS EVERY THING; A SPLENDID REPORT.

If you wish to know how the Japanese buckwheat has done, I would say it gave good satisfaction to all parties concerned. It was ordered for four different men, 2 pecks each. One man hasn't told me yet how much he raised from his, but he says it is the best in the world. He sowed half a bushel of silverhull buckwheat alongside of the Japanese. It wasn't worth any thing; and the report of the old buckwheat, so far as I have heard, is about the same in substance. The man who hasn't told how much he raised, took 1½ bushels to the mill on the 16th inst., and got it ground, and had 53 lbs. of flour. The 1½ bushels that were sown on my own farm yielded 69 bushels. I came pretty near having to buy a new mill to clean the Japanese on. It took an extra hand to rub it through the fine riddle, and even then some grains wouldn't go through. The Japanese buckwheat made a splendid yield in grain, a big turnout of flour, and good griddle cakes; but it bloomed so nice, and smelled so good, that nearly all the bees in the neighborhood worried themselves to death flying from blossom to blossom in search of nectar. Well, honey is scarce, and so are bees.

H. T. SEWELL.

Pleasanton, O., Nov. 19, 1889.

THE FIRE AT THE ST. JOSEPH EXPOSITION.

In preparing exhibits for fairs or expositions, especially where property of great value is carried on to the grounds, it were well to consider the chances of fire. One of our bee-friends has had a sad loss in that direction. See what he says:

All the books and things I got of you went with the rest. It seems like hard luck, as this was all we had laid up to do business with; but we are trying to make the best of it, and hope to be able to resume business in the spring. We had no insurance, and so it was all a clear loss. We had set up a very fine display of comb and extracted honey, and one of implements and bees. EMERSON T. ABBOTT.

St. Joseph, Mo., Sept. 23, 1889.

As such things are not very common, most of us have perhaps overlooked the matter of getting insurance on such property. We deeply sympathize with friend Abbott; and if any of the brethren feel like doing a little more than extending sympathy they might do so by consulting his advertisement, which appears on page 766, Oct. 1.

THE ROCKY MOUNTAIN BEE-PLANT SEED.

I send by this mail 5 lbs. of cleome (Rocky Mountain bee-plant). I sold the seed to Mr. Samuel Wilson, that he made the extravagant puff about. The party that speaks of sowing the cleomes in a box with damp earth in it, and letting it freeze till spring, then putting it where you want it to grow, has the proper idea, as it will not germinate without freezing, according to my experience. I have on hand about 100 lbs. of Rocky Mountain bee-plant seed, which I will sell in bulk, for \$1.00 per lb., or 10 cts. per oz., postage paid.

Jewett, N. M., Oct. 25, 1889.

W. S. MITCHELL.

A VISIT TO FATHER LANGSTROTH AND OTHER BEE-KEEPERS.

Friend Root:—As I have just returned from Dayton, after a visit to father Langstroth, I feel sure that our brothers of the hive will be glad to get reports from headquarters. I came hither from Cincinnati, O., where I left my esteemed friend, Chas. Muth, hale and interesting as usual. I am glad to say that I found the veteran bee-keeper had been enjoying better health of late, and we had quite a pleasant talk about bee-keeping and bee-men, past and present. Among those of whom we compared mutual reminiscences we spoke of the late lamented Joseph Woodbury, of Mount Stafford, Exeter, England, whose name will ever be remembered among British apiarists as the inventor of the improved box-frame hive. This hive, which was rather smaller than the standard Langstroth, was practically a square box about 10 inches deep, consisting of two wood frames connected by corner posts, the sides being filled out with lengths of straw tightly compressed between tin uprights attached to each corner post. The top was a wooden frame, similarly fitted, and the whole was protected from weather by an outer wooden case. The whole hive, though more expensive than wood, was found to be exceedingly durable; and from the non-conducting properties of straw, it combined all the advantages of the present chaff hive with the minimum of weight. Mr. Woodbury was the first to export the Italian and Egyptian bees into England; and at the time of his death he was making arrangements for

the introduction of *Apis dorsata*, the giant bee of India; and had it not been for his untimely decease the domestication of that bee in Great Britain would probably have been an accomplished fact. Mr. Langstroth's book, as revised by the Dadants, will be read with interest all over the world. There are, I understand, also to be German and French editions.

This has been only a fair honey season in Virginia, owing to excessive rains; but there has been quite a quantity of good fall honey made from the white aster, which yields a honey, the scent of which, when first gathered, can be noticed even when at a distance from the apiary.

H. STILLINGTON STEPHENSON.

Medina, Nov. 8.

CARP AND BEES.

Some of my bees nearly starved until some time in June. The honey-flow started, and kept up a gradual flow until frost. The flow was not as rapid as I have seen from white clover, but it lasted longer than I ever saw before, and the bees worked on red clover all the fall, so the bees had plenty to do from the time white clover started until frost stopped them. The quality is extra good, but the price is low and the demand light, on account of too big a crop. This has been a No. 1 honey year in this section of the country.

How are your carp doing? I placed 28 $\frac{1}{2}$ -lb. spawners in my pond last spring. This fall they weighed 2 $\frac{1}{2}$ lbs. We got about 2000 young ones, from 3 to 6 inches long, besides what a big turtle killed that was in the pond. The water got very low, so the fish were crowded, which gave the turtle a good chance to get fat on the young carp. We caught him when we drained the pond. We are wintering our carp, some in a large supply-tank 10 feet high, 10 in diameter, and some in a milk-tank supplied by a drilled well, 95 ft., and a windmill to do the pumping.

G. J. KLEIN.

Conrad Grove, Ia., Nov. 2, 1889.

Friend K., our pond is pretty well stocked; but we have not used very much of them for food as yet. Turtles and muskrats are much more troublesome when the pond gets low. Better turn the supply from your windmill into the pond so as to keep it always full. That is the way we do now, and our pond has never been low since the windmill was put up.

DOORSTEPS FOR BEE-HIVES; FLAGGING AND BRICKS.

I am to-night in receipt of the Nov. 1st issue of GLEANINGS, and I have just been reading friend Boardman's "Dooryards for the Bees." About 20 years since, I wanted to put my bees in a new yard, and have it look in decent order; so I procured flagstones larger than the bottom of the hives. At each corner, under the hive, I put half of a brick to keep the hive off the stones; and on the center of the flagging, in front of the hive, I put a whole brick for an alighting-place, so that, if a bee should fall on the ground short of the entrance to the hive, it could at once walk directly to the hive without having to rise on the wing. The stones should extend some inches beyond the bricks all around, and be raised slightly above the level of the yard; then it is an easy matter to trim off any grass or weeds that may grow up in the way of their homeward flight. I prefer stones of a light color, instead of

slates or dark-colored ones. I suppose they would not be so hot under the hives. The arrangement has given me entire satisfaction as a bee-stand, with no trouble from warping or rotting to be looked after. Care should be taken in placing the stones to have them level on top. C. RISLER.

Locktown, N. J., Nov. 4, 1889.

Very good, friend R. I suppose your hives have a permanent bottom, and, if set over the stones, water would collect and stand between the bottom-board and the stones. I think I should prefer to have the hives raised up from the stones a little, by a cleat clear around; then mice, spiders, etc., could not crawl between the hives and the stone.

GETTING RID OF SKUNKS BY MEANS OF POISON.

I just happened to be looking over a back number of GLEANINGS, and noticed two articles telling how to get rid of skunks. Now, I should like to add my mite. I was very much bothered with them, as they are very numerous here. I get a can of salmon, and treat it to a little good strychnine, and spread it around near the bee-yard. Fish of any kind is a choice morsel for them. I do not know how many I have killed; but I know I thinned them out in my vicinity. I once found one lying right where he found his supper. I am indebted to an old miner for this recipe. H. P. LUTHER.

Redlands, Cal., Oct. 31, 1889.

We are much obliged, friend L., for the fact you give us in regard to poisoning the "varmints."

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

SMOKING TO MAKE THE BEES FILL THEIR HONEY-SACS.

When bees are disturbed by smoking them, and they fill themselves with honey, is the honey entirely lost, or do they return it to the combs?

Pipestem, W. Va., Nov. 3, 1889. G. C. HUGHES.

[Friend H., the honey is not exactly lost, of course, for the greater part of it will be put back in the combs, after the bees quiet down. But I feel quite certain that a great part of the honey is very often about as good as lost, where bees are made to fill themselves by smoke. This is especially the case with hybrids, or bees having enough black blood to tear open the cappings, and gorge themselves with honey every time the hive is opened or disturbed.]

FLAGGING FOR ENTRANCES.

You ask in GLEANINGS for the price of stone to use in front of hives. I have thin flagstone for that purpose, which cost me six cents a foot, superficial measure. A cheaper material, and one I think you will find as good, is slack coal.

Belle Vernon, Pa., Nov. 8, 1888.

A. B. BURD.

THE BLACK GRAMPUS; THE FLUID FROM ITS TAIL.

Friend Root:—The black grampus sent to Prof. Cook did discharge a greenish fluid from its whip, or tail. See page 843, Nov. 1. I placed it on a white cloth, and poked it with a stick, when it at once clinched the cloth with its claws and discharged from its whip this fluid, which was very offensive.

I had a moccasin snake this week for Prof. Cook, but it bit itself and died.
S. C. CORWIN.
Sarasota, Fla., Nov. 7, 1889.

JAPANESE - BUCKWHEAT FLOUR SELLING AT \$3.00 PER 100.

We have had a good honey crop here this season. I rented ten acres of land and sowed six acres to buckwheat. I received 120 bushels of seed. The flour will bring \$3.00 per hundred. I think it has paid me well for my trouble. Honey will average 12 cts. per lb.
J. W. MORRISON.

Oswego, Ill., Nov. 1, 1889.

[Friend M., I should say that you were getting very good prices for your buckwheat flour. It is selling here at from \$2.25 to \$2.50 per 100 lbs. The Japanese buckwheat will, without question, break down both the price of the grain and flour.]

OVER 1100 BUSHELS OF JAPANESE BUCKWHEAT FROM 40 ACRES.

I have raised this year 1170 bushels of Japanese buckwheat from about 40 acres, the best of it averaging 40 bushels per acre. This crop is from seed I bought of you in 1888; \$3.00 per bushel is the price I paid. As there is no market here for buckwheat will some one advise me how I can dispose of it to the best advantage?
MILTON PARKER.

Quick, Ia., Nov. 9, 1889.

KNOCKING PRICES DOWN WITH HONEY-DEW.

Bees here have been a complete failure this year. One man sold a lot of honey-dew at one of the stores. He sold it, I suppose, for good honey. That is what smashes the home market. People eat such stuff as that, and they are sick of honey, when perhaps they do not know how good honey tastes.

FRED C. FULLER.

Montague, Mass., Oct. 22, 1889.

PREVENTING INCREASE.

I am interested in methods of preventing increase when working for comb honey. Have we had all the available information about methods of proceeding, and of the success of the plan of removing the queen to prevent swarming? Can we not try Mr. Doolittle's new plan of preventing increase without transferring the bees to half-depth hives?
J. S. HUNT.

Charlestown, N. H., Oct. 29, 1889.

RHEUMATISM, ETC.

I used to have it a good deal, but have been pricked a good many times by the little "varmints." I don't have it now; and whether it is the stings or honey that I eat, I can not say.

The Ignatum tomato seeds were received late, and the ground was rather wet from so much rain; but they did quite well. I think, all things considered, they are the best tomatoes I ever raised—nearly solid, no rot, and fine flavor.
C. S. WALKER.

Grafton, Vt., Nov. 1, 1889.

I send the latest quotations on honey and wax, from the San Francisco Bulletin.

Honey—We quote: White comb, 10@12c; amber, 7@9c; white liquid, extracted, 5½@6c; amber, colored and candied, 4½@5c per lb. Beeswax—Quotable at 19@21c per lb.

St. Helena, Cal., Nov. 2, 1889.

W. C. AIKEN.

[Thanks, friend A. By the way, will not some of our California readers send us the names of one or more reliable honey commission men in their state? No one quotes the California market in GLEANINGS. We should like the names of one or two in New Orleans also.]

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 149.—a. How much per pound can we afford to pay for retailing-packages (of a capacity of, say, from one to five pounds) for extracted honey? b. Which do you prefer—glass or tin for the purpose? c. What sort of a label do you prefer for each; that is, large or small?

Where I have retailed extracted honey, the parties buying furnish their own packages.

New York. C.

G. M. DOOLITTLE.

a. A cent a pound in our town; a 5 and 3 lb. package sells the best. b. We use tin pails without labels.

Wisconsin. S. W.

E. FRANCE.

a. That depends entirely upon the advantage the package is in securing a price for the honey. b. Glass is the most attractive, or may be so. c. Medium size, and plain.

Ohio. N. W.

H. R. BOARDMAN.

a. I never sold my honey in a market that required such small packages, so I can not answer from experience. b. I prefer tin for larger packages. c. I never used large labels.

Cuba.

O. O. POPPLETON.

a. I allow one cent per pound. I deliver the goods at the store. b. Tin pails, holding 3, 5, and 10 pounds. c. A large label, well printed, with directions how to bring the honey back to a liquid state when granulated, etc.

Vermont. N. W.

A. E. MANUM.

a. My experience is limited. The whole affair depends much upon how your customers have been educated. b. At the same price, I should prefer glass. c. On glass, a small label; on tin, the larger the better.

Illinois. N.

C. C. MILLER.

a. I never have honey retailed in less than 10-lb. packages, on which I feel free to pay 10% for the selling. b. I use tin only. c. A large label, giving a number of brief points of information in reference to our occupation.

California. S. W.

R. WILKIN.

I can not answer. It depends on the market. I prefer useful glass cans like fruit-jars, or else jelly-cups, or else cheap tin pails. That is, I can market such most readily here. The Muth jars do not sell well. People say they don't wish to pay so much for a "bottle."

Michigan. C.

A. J. COOK.

a. We must buy vessels as cheap as we can get them, consistent with the style we want. b. We prefer glass jars for small packages up to 2 pounds; tin, for packages from 3 to 50 pounds. c. The label should always be in proportion to the package. Our tin cans cost from 1 to 2 cents per pound for honey.

Ohio. S. W.

C. F. MUTH.

I always sell extracted honey in the 25 to 50 gallon barrels, therefore I can't say; but as you have quoted prices of all kinds of receptacles for honey,

and no doubt know your market prices of honey, you certainly can estimate better than one who sells in another market. A neat and attractive label, and one that suits the package.

Louisiana. E. C.

P. L. VIALON.

a. I have never handled packages of less than 10 pounds for extracted honey. Dealers have generally handled honey for me for one cent per pound. b. Tin. c. One having good plain type, so they can be read easily—not too coarse and gaudy, like the cheap-soap advertisements.

Wisconsin. S. W.

S. I. FREEBORN.

a. We should pay more for a pound package, per pound, than for a 5-pound package. We pay about 3 cents per pound of honey for the small ones, and 1½ to 2 cents per pound of honey for the larger sizes. b. We prefer tin. c. Large labels, explaining that granulation is the best proof of its purity, and how to liquefy granulated honey.

Illinois. N. W.

DADANT & SON.

a. I don't know. I haven't retailed any for several years in anything else than yellow pails. I should prefer tin; and for the pound, a can without bail. Two to three cents a pound, I judge, would buy them. A neat and fair-sized label, in proportion to size of package, would be better than too much display. Its purity would be less questioned if without any label.

New York. C.

P. H. ELWOOD.

a. I don't know. I have had but little experience, my honey being mostly sold by the gallon, to consumers. b. I saw some very neat paper packages at the Detroit exposition, that I should think would be nice for the purpose. The cost would be less than one cent per pound. c. If the package is large, use a large label; if small, use a small one. If tin is used, cover with a neat label; if glass is used, use such a label as will allow the honey to be seen.

Ohio. N. W.

A. B. MASON.

The less we have to pay for a package, the more honey we can sell put up in that package. For any thing over a quart, I prefer tin to glass, especially for liquid honey. The package should be useful after the honey is taken from it, and we have no tin receptacle of less than that capacity that is of any use. Liquid honey sells best in glass, but candied honey better in tin. Glass jelly-tumblers do well for a small package, but are too expensive to sell a great quantity of honey in. Until the house-keeper gets all the jelly-tumblers she wants, they are the best thing we can get for a small package. The label for a glass package should be small. For a tin package it should cover the entire surface as far as possible.

Illinois. N. C.

J. A. GREEN.

The subject of this question is one of great interest and importance to bee-keepers. We can stand it to pay a cent or half a cent per pound for the cost of packages—I mean per pound of honey they contain; but you see when we get down to half pounds and pounds they must necessarily cost very much more. There is where the trouble is. In my opinion, tin is not going into general use for honey. Honey is not a staple, and never will be at any price for which we can afford to produce it. It is a fancy luxury, first, last, and all the time, and glass is the thing to put it up in, in packages of less than half a gallon. Use a small label on glass, so the

contents will show off well. If I used tin I should prefer to label it all over.

Michigan. S. W.

JAMES HEDDON.

This would depend upon the style of package. If the package itself would enhance the price of the honey, we could perhaps pay 2 cents a pound; but for a 5-pound package, the price should not be much over one cent. Our 5-pound packages, with label, cost 1¼ cents. b. We prefer tin for 2½, 5, and 10 pound packages; glass for any thing smaller. The latter should come under the head of fancy packages. c. For a 5-pound pail, a plain label, to go about half way around—the same size label used on all of our tins. For glass, a small fancy lithograph label.

New York. E.

RAMBLER.

I think we should keep the cost of package below 2 cents a pound, although for one-pound packages it may be necessary to go higher. I prefer tin. As to label, I am just heathen enough to think it is a good plan to sell honey without any label at all. The general public know more than you give them credit for, brethren. They actually know that it takes time and expense to make honey-packages look like Solomon in all his glory, and that they have to pay for it all. With all the wealth of ornamentation that we have now almost everywhere, they don't care to have their honey-cans decorated by Raphael and Rubens. One of the best strikes a body can make is to induce his customers to think he is trying to furnish them with good honey as cheaply as practicable. People like to believe this—and if it is true, it is not so very hard to induce the belief. To avoid all needless clap-trap that makes expense, is one good way to convince people that you are thinking of their interests as well as your own.

Ohio. N. W.

E. E. HASTY.

There seems to be a pretty fair agreement all through the above answers. Two of the friends, however, Elwood and Hasty, suggest that, under some circumstances, honey will sell better without a label than with. After people get acquainted, and know you, they do not care any thing about a label. In fact, I have noticed the disposition that friend Hasty speaks of. It is something like this: "Give me some honey as cheap as you can, and in the cheapest possible package. I do not want any show or display. I just want some genuine honey." When we first began selling horseradish on our wagon I thought it was very important to have a label on it, telling that the horseradish was put up with the very best quality of white-wine vinegar, and that the entire work was in the hands of careful women in our establishment, so it was pure, clean, and wholesome. The boys, however, very soon began to report that people preferred it without any label. The label made it look as if it came from a city manufactory, and they preferred home-made horseradish in plain clean bottles. White flint-glass bottles, instead of green window-glass, was a decided improvement. When, however, some careless packer let a fly or two get into the bottle in such a way that customers could see it, it was an advertisement in the wrong direction, *you may be sure*.

HUMBUGS AND SWINDLES

PERTAINING TO BEE CULTURE.

THE GOLDEN BEE HIVE, AGAIN.

Dear friend Root (for I have learned to love you as one through GLEANINGS):—Inclosed please find a circular containing something about the Golden hive. I saw in GLEANINGS, Sept. 15, 1889, page 693, that the circular is a fraud. Mr. J. B. Pickler is now in Concord, Cabarrus Co., N. C., selling farm-rights for \$8.00, and giving a hive. Please publish the same in GLEANINGS, and send a copy to our local paper, *The Times*, Concord. He promised me to-day that he would publish what you had in GLEANINGS. Concord, N. C., Nov. 14, 1889. S. L. KLUTTS.

The day after, friend K. writes again as follows:

Mr. A. I. Root:—On my way home yesterday evening, J. W. Carriker showed me a circular that J. B. Pickler had given him on you, which you will find inclosed. We do not like to see such reports circulated on you, for we have come to love you as a true Christian gentleman. Of course, we know nothing of GLEANINGS ten years ago, but we do not believe one word of it. I am trying to get all the evidence that can be had concerning the Golden bee-hive man. I wrote to A. J. Cook, asking him if it was true that he ever used the Golden hive. Please send a copy of GLEANINGS to *The Times*, Concord, with the article marked. He promised to publish it. Also send a copy to J. C. Klutts, who bought a farm-right of the Golden bee-hive. His postoffice is Clear Creek, N. C. Send one to J. W. Carriker, Pioneer Mills, N. C. S. L. KLUTTS.

Clear Creek, N. C., Nov. 15, 1889.

Here is another letter from another friend in the same vicinity:

Mr. A. I. Root:—I have been a subscriber to GLEANINGS for some time, and have become somewhat attached to you in that way. But there is a gentleman in our county (if I can call him such) who is selling the Golden hive, and circulating scandalous circulars concerning you. In looking over GLEANINGS I find him advertised in the September number, 1888, as a humbug. I tell you, I just felt like saying Sunday-school words to him when he tried to injure a man whom I have every reason to believe is honest, and a Christian, and is trying to better his fellow-man. Please to give the gentleman a hearing in the *Concord Times*, a weekly paper published in our county.

R. J. CALDWELL, M. D.

Clear Creek, N. C., Nov. 15, 1889.

We do not need to occupy very much space in noticing these circulars. A single sentence from the large circular will be sufficient:

Prof. A. J. Cook, of the Michigan Agricultural College at Lansing, reports over \$80.00 from each swarm of bees kept in the Golden hive last year.

Our friends will notice that this is the same thing we gave in the September issue. Now, a man who will, year after year, print such a statement, when Prof. Cook never made any such report, and never had the Golden bee-hive in his apiary at all, would probably do any thing to get money. In regard to the small circular alluded to, slandering your humble servant, I will only say that it is on a little sheet *without a date*, put

out by N. C. Mitchell about *ten years ago*. A sentence, or even a part of one from this circular, will explain why Mitchell got it out.

"No doubt many of you, and especially those who read GLEANINGS, know that A. I. Root has kept our name at the top of his Humbug column"

This is true. N. C. Mitchell has been advertised as a humbug and swindler, off and on, for toward fifteen years. Good father Langstroth, in commenting on the matter, once said, "If Mitchell had employed the same talents, skill, and education, in honest work, that he has in trying to defraud, he might have been well off." This is no doubt true. Well, he who exposes humbugs must expect slander and abuse. Many of the present readers of GLEANINGS may perhaps not be aware that your humble servant has not been preaching Jesus Christ all of his life. When there came a change it was a great change. "To be carnally minded is death; but to be spiritually minded is life and peace." Mitchell, of course, picked up fragments of the old A. I. Root, and thought with these to frighten me from my purpose of exposing him. Of course, I did not frighten worth a cent; for he who is serving the Master has nothing to fear, even from his enemies. Do not be troubled, dear friends. Let the enemies of truth and honesty scatter as many circulars as they please; they will not harm your old friend. His trust and refuge is with Him who said, "Blessed are ye when men shall revile you, and persecute you, and say all manner of evil against you falsely, for *my sake*." Something comes in here, however, which I do not understand. What has Pickler or the *Golden bee-hive* to do with Mitchell, with his old adjustable hive? It seems to me that we are unearthing and bringing to light an old humbug under a new guise. We are very much obliged to the friends for giving us prompt notice of the patent-hive frauds. When Mitchell was exposed in one locality he moved to another. In fact, he started out in different localities, north, south, east, and west; but when he found that a subscriber of GLEANINGS popped up in almost every neighborhood, he seemed to lose heart, and, we hoped, had concluded, as good father Langstroth had said, that more money was to be made in honest, legitimate business, than by trying to get it by falsehood and fraud. We have heard of nothing in regard to Mitchell now for some years. When friend K. gets his answer from Prof. Cook, we hope he will place the matter in the hands of the proper authorities, and have Pickler arrested. If money is wanted to bring him to justice, we shall be glad to help furnish it.

Since the above was written we have been printing a lot of order-sheets for friend Jenkins. On the back of these he has the following:

A WARNING!

Stop thief! I hail the vender of "Rights" to use the "Golden," the "Bernheim," and other so-called patent (?) bee-hives. *Quit your meanness*, and make an honest living by doing something else than going about the country, taking people's money for nothing.

Let us review the matter of patented hives a little. In 1851 the Rev. L. L. Langstroth invented and

patented the first practical bee-hive the world ever knew. Its principal features were the movable frame and bee-space. As Mr. Langstroth's patent expired more than twenty years ago, his hive, and all its valuable features, are public property. Since that time hundreds of patents have been issued on bee-hives, and the great majority of them have been on claims or principles worse than worthless. It is an easy matter to get a patent on any novelty or new design, even if it is practically useless. Thus it is easy to attach some clasp, feeder, fixture, or something patented, to an otherwise unpatented hive, and the combination proclaimed, with a slight degree of truth, a *patented hive*! Some so-called patented hives have been industriously shoved in communities; and the people would afterward discover that there was no patent on the hive at all, may be on no part of it, and that they had been duped by swindlers who had sought fresh pastures elsewhere. In either case the usual result is, the purchaser of the "Right" finds himself in possession of the plans for a hive that no one but a first-class mechanic can construct properly (as the majority of them are very complicated). Such labor costs more than he can afford to pay, and he does not use his "Right" after buying it!

This is a significant fact; think of it: The largest and most successful bee-keepers in the world—men who produce TONS of honey, and who make bee-keeping a life study, do not use patented hives! They are posted, and would not hesitate to pay \$100 for the right to a hive that would give them any advantage over the unpatented hives they use.

Bee-keepers and farmers, put your bees into good unpatented frame hives, and keep them as they deserve; and if you want to make your own hives, do so; but don't pay any man a cent for the right to make them. If the patent-hive agent calls on you or gets into your neighborhood, set the dog on him; show him up; warn your neighbors of him; make it unpleasant and unprofitable for him, and he won't abide with you long.

My friends, these are hard things to say; but the Southern people have been and are being so imposed upon that I feel justified in thus warning them. If you don't believe what I say, write to the editor of any bee-paper in America, and ask him if I am not right.

MYSELF AND MY NEIGHBORS.

There shall arise false Christs and false prophets, and shall show great signs and wonders; inasmuch that, if it were possible, they shall deceive the very elect.—MATT. 24 : 24.

AS a rule, those who follow Christ Jesus are expected to show, in their daily conduct, love and kindness; and perhaps I should say, *only* love and kindness under *all* circumstances and on all occasions. Jesus conquered by love. It is true, that on one or two occasions he had to drive certain people from the temple. He even used a whip of knotted cords, and turned their money-tables over. But these few occasions are isolated, and stand almost alone. His mission in this world seems to have been mainly to *persuade* people toward better ways. If they would not be persuaded, they were allowed to go on in their own evil ways. We therefore, then, who are *followers* of Christ, should do our work in the spirit of love and kindness. This the world has learned to recognize and expect. When we attempt to enforce law and order in any other way, very likely we shall hear, "A pretty specimen of a Christian you are!" or, "Do you call that Christianity?" Well, even if we do meet such words and opposition, I believe that every true Christian is called upon, sooner or later, to meet Satan in a regular pitched battle. I would not *court* controversy nor quarrel nor conflict;

but I think there is a time when forbearance ceases to be a virtue. A very simple incident will perhaps illustrate my meaning. A good deal is said about ruling dumb brutes by love and kindness. In fact, I am a strong believer in the doctrine myself. I would not pound a balky horse, neither would I allow it to be done in my presence. I would strive, however, to accomplish what I wish, by mild words. We *may be* mild, and yet firm at the same time; but with me it is one of the most difficult matters that I have ever had to meet. Our old Charlie, that draws the market-wagon, is an excellent horse for business. He is large and strong, and ambitious; yes, he will work until he falls down, if you let him. He will also stand hour after hour, all over town, and we never think of such a thing as hitching him. At the same time, he has some little notions that are not pleasant, and, like one of the human family, he very soon discovers whether he can make his driver respect his notions or not. If his driver is a man who knows what a horse *ought* to do, and is determined to make him do it, he submits readily enough. When we back the market-wagon out of the house built expressly for it, sometimes when the roads are heavy the thills are dropped partly on the plank sidewalk. Old Charlie has a kind of theory of his own, that sidewalks are made for *men* and *women* to walk on, but not for *horses*. He will not step on the walk if he can help it; and if he is obliged to stand there, he backs and stamps and twists. I have often remonstrated with the boys for allowing him to have his own way; but rather than have a tussle with him they push and tire themselves out in backing the wagon off through the mud. When I remonstrated, one of them asked *me* to make him step into the thills while they were across the sidewalk, if I thought I could do it. He backed so stubbornly that I had much difficulty in getting the thills through the straps, and then he came very near breaking them by trying to get off from the planks, cramping them sidewise. We were late that morning, and so I let him go. Another morning, when we had more time, I told the boys to wait until I had taught the horse a lesson in obedience. I had had a like experience with him before in other things, and I knew what was needed. I did not want a whip. I simply wanted a little stick—a short piece of lath suits me best for such a purpose. I waited until I found it, and then I took him by the bits, and said, decidedly, "Now, Charlie, behave yourself, or there will be trouble." He saw the stick in my hand, and knew by my tones, doubtless, that there was not going to be any fooling, nor time wasted. I took pains to hold the stick where he could see it clearly. He stepped into the thills, without any trouble whatever. When we began to raise them he commenced back, as on former occasions. I simply raised the stick, and said, firmly, "Look here, sir! you behave!" That was all. He did exactly as I wanted to have him, without any fooling, and without wasting perhaps five or ten minutes. The next time, he behaved well without

any stick; but when the boys tried to handle him he behaved just as he had on former occasions. I presume he rather enjoys having a tussle. Very likely it varies the monotony of going around from house to house, and standing still, doing nothing a great part of the time.

Now, my friends, please do not get an idea that I think we ought to make everybody toe the mark according to *our own peculiar notions*. God forbid. Most of us are, however, called upon, sooner or later, to be responsible for the conduct of others, to a greater or lesser extent. When God spoke to Samuel, pronouncing judgment on Eli, the accusation was, "His sons made themselves vile, and he restrained them not." The three little words tell the story—"restrained them not." The Scriptures tell us that he remonstrated, and doubtless protested. He told them they *ought* not to do so, but omitted to say any thing about *must*. But they did so, notwithstanding. "What is to be done?" do you ask? Well, I should say take a lath, as I did to old Charlie. Very likely you may not need to use the lath any more than I did; but if you can not give the boys to understand in any other way than that, that you *mean* what you say, by all means take a lath. I think, however, the parent who is in real earnest can get along without any lath or rod either. He must be prepared, however, to enforce obedience, even though it cost a conflict. One who teaches school is in the same position, only his field is a wider one. One who is employed by the government to look after government property has a still wider field. One who is employed by a great institution to look after the men and women who do the work, in the same line has responsibilities that he can not safely evade. I know the workmen are sometimes inclined to feel ill will toward the foreman who "squeals." Now, it is bad to lose the good will and hearty co-operation of those over whom we have charge; but it is a worse thing to let them have their own way, and destroy or pilfer the property of the employer.

Shall I tell you, dear friends, what has led to this long preface? Well, it is because I have been feeling for some time that there were some few things that I ought to touch upon, even through these Home Papers. I have hesitated, and have forbore to do so because I might hurt the feelings of a good many—perhaps some near and dear friends. Even though this be true, however, I ought not to hesitate to say things when I see others suffering and being led into error while I say nothing. Of course, I ought to be *very sure* that I am not in error myself; and in matters where there are differences of opinion, perhaps it is often as well to let them alone. GLEANINGS has for years kept up what we call a Humbug and Swindle department. A good many times, however, this department has been out of sight because it is so extremely necessary that I make no *mistake* in the matter; that is, that the thing pronounced to be a humbug and swindle be most unmistakably and clearly so. And even when it seems there can be no question or doubt in the mind of any sane individual,

there will still be a few who insist that the thing is honest and legitimate. A great trade is now being carried on in our country in what are called electrical appliances for the cure of disease. I am firmly satisfied that these are, without question, *humbugs and swindles*. The fact that many have tried them and have been helped (in their opinion) does not change my convictions a particle; neither does the fact that there are large manufacturing engaged in making electric medals, belts, bracelets, braces, jackets, hair-brushes, etc. My friend, if you have any confidence at all in A. I. Root, please believe that he knows when he tells you that these things by themselves have no effect whatever in the cure of disease. Electricity has been my study a great part of my life, and almost a passion from childhood.

I know, while I speak, that many of you will not believe me. Even in our own establishment, electrical belts have been purchased by women who are comparatively poor; yes, and they have paid as high as ten or fifteen dollars for them to smooth-tongued agents. Worse still, the agent was a woman; and it is not a very pleasant task to tell a woman that she is a humbug and a swindler. This woman carried a magnetic needle which she placed on the table; then because it flew around when she moved the belt under the table, with the statement that the belt exerted a powerful influence for the cure of disease, it carried conviction. The belt was made of a string of magnets. I know that many of you insist that magnetism has power over disease. Let me quote from *Scribner's Magazine*, for November, page 598. The article was written by M. Allen Starr, M. D.:

The most careful experiments have shown that the human body is as completely insensitive to magnetism, and as wholly unaffected by it, as a piece of rubber or of wood. A person may stand between the poles of the strongest magnet, one which might hold up a ton of iron, without the slightest perceptible effect upon any of the bodily functions being produced. Hence all so called magnetic appliances, brushes or combs, disks, belts, and magnets, have absolutely no curative power whatever.

Magnetism is not electricity; but even if it were, it would do you no good. Later on, a gentleman came into our office and wished to show me a belt that *really* gave forth a current of electricity. When I took the ends in my fingers there was, unmistakably, a feeble electric current. The belt was made of zinc and copper. It was wrapped in a cloth moistened with some acid. He said it was dipped in a solution of weak vinegar every morning to start the current.

"Very good," said I. "You have an electric current here; and I may say this is the first time that I have ever seen a trace of electricity from these so called belts, medals, etc. But, my friend, do you know that even this current of electricity has little if any power at all in curing any sort of disease?"

He owned up that I was right. "But," said he, "Mr. Root, the world is so crazy for something in the way of electricity, that the fact that they can feel the current does

a wonderful sight toward making them feel better."

This agent was honest enough to admit what I knew to be true. He had once been a bee-keeper, and had read GLEANINGS. He had quite a talk with me on the matter, and I am pretty sure he has never sold any more electrical belts. Perhaps it is true, that electrical instruments in the hands of your family physician may at times prove beneficial; but your family physician, if he is well informed and honest, will tell you that the effect is more upon the imagination than upon the body. Mrs. Root had one of the latest and most improved machines in the house for several weeks. Our family physician advised her to try it for neuralgia. She and I were anxious to succeed just a little with it, and for a double reason. We were both compelled, however, to decide that it had no effect, after giving it an extended trial. The same article I have quoted from in *Scribner's Magazine*, "Electricity in Relation to the Human Body," gives the following on page 599:

The curative powers of electricity are really very limited, and have often been exaggerated by those to whose interest it is to urge them.

Now, then, friends, if it is a fearful thing to take the money of poor, hard-working women, and give them something under the pretense of science which really is as ineffective as a horseshoe nailed over a door, there is a kind of humbugging and swindling growing rapidly among us, that is, in my mind, a *hundred times worse*. It comes under different guises and under different names. It is this matter of curing disease by what the advocates term the prayer or faith cure. The manufacturers of electrical appliances, although they are swindling the masses, do not call upon the Almighty to witness that they are honest. Nor do they pretend that they have a special power from on high to heal by touch, as did our Savior, or to heal by simply praying when miles distant. I know there are many among our readers who will, perhaps, be greatly offended because of the above; and many, no doubt, will refuse to have our journal any longer in their homes. You will say that I am wrong. You will say that I have not seen the *right kind* of faith cure. Some of you will say, that I am entirely unacquainted with Christian science. I assure you that I have taken pains to acquaint myself repeatedly, only to discover, after sufficient investigation, unmistakable signs of the cloven hoof. I heard of it in different places in California, and I met it in Wisconsin. It is round about my own home. In fact, near relations have sent money to pretenders in cities far away to have them pray for them. Men who have never prayed for themselves are praying for others, for a fee of \$5.00 per hour. You must pay \$5.00 before any praying is done. It reminds me of the reply of Peter, as we read in the eighth chapter of Acts: "But Peter said unto him, Thy money perish with thee, because thou hast thought that the gift of God may be purchased with money. Thou has neither part nor lot in this matter, for thy heart is not right in the sight of God." When-

ever I hear of these things I at once make inquiries in regard to the character and reputation of the one who pretends or professes to effect the cures; and every time it seems to me that Peter's answer fills the bill exactly.

Many of them profess to love the Bible and the Christian religion. They want to walk hand in hand with Christian people. For a time I have been deceived myself. Sooner or later, however, it comes out like the little story in the 16th chapter of Acts, as follows:

And it came to pass, as we went to prayer, a certain damsel possessed with a spirit of divination met us, which brought her masters much gain by soothsaying. The same followed Paul and us, and cried, saying, These men are the servants of the most high God, which shew unto us the way of salvation. And this did she many days. But Paul, being grieved, turned and said to the spirit, I command thee in the name of Jesus Christ to come out of her. And he came out the same hour.

You will no doubt tell me that the followers of Christian science in your neighborhood do not receive money; that they do their work as Christ did his, without fee or recompense. I have heard this repeatedly; but in every case where I have followed it out I found that it was not true. The five or ten dollars came in somewhere. Of course, they explained it by saying that the money was a free gift from some person or means who felt grateful. Very well. Ask these persons who have been healed, after a few months have passed, how it turned out. It is like the poor girls in our factory, who would not listen to me. Sadly and sorrowfully I was obliged to give up arguing, and to wait a few weeks or a few months, until the things were thrown aside, and remembered only as mistaken notions that did not stand the wear and tear of every-day life and of every-day experience. Your family physician, through his medical journals, is promptly informed of every inch of progress made in the way of new remedies and new methods of curing disease. He knew all about electricity and its applications in this line years ago. New discoveries, of value, do not come through traveling agents without name and without reputation. In the same way our established ministers of the gospel are perfectly competent to advise in regard to the cure of disease by prayer. Do not let anybody persuade you that God is more ready to hear *somebody else* pray for your afflictions than he is to hear such a prayer as you can make your own self. I have, through all my Christian life, been in the habit of asking God to help me and give me light in regard to this matter of sickness and pain. After such prayer, I have many times been strongly impressed with the importance of *pure air, pure water, plenty of sunshine, plenty of sleep, etc.* Perhaps when I am suffering bodily pain I pray for myself with a little more earnestness than I do for others; but I hope I am not so selfish as to pray for myself only. Sometimes, it is true, I pray for those who *will not* pray for themselves; but I pave much more faith when I know the afflicted one is lifting up his heart also to the great Judge of all the earth. If you are under great affliction, by all means ask your pastor or your believing

friends to pray for you. But do not, I beg of you, think of *paying money* to somebody, for a little careful reading of your own Bibles will show you that such a course is almost exactly in a line with Simon the sorcerer, or the damsel that grieved the heart of poor Paul. Perhaps I should say a little more about those who declare that they have experienced this relief that is almost miraculous. The article I have copied from *Scribner's Magazine* touches a good deal upon this point. Let me give you an illustration from my own experience.

When Warner's Safe Cure first became advertised so extensively, I, like thousands of others, imagined that it was just what I needed. I purchased a bottle at our drug-store, and was so greatly benefited, that, had it not been for Mrs. Root, I *might* have come out in print and advised all the readers of GLEANINGS and all the friends of A. I. Root to buy Warner's Safe Cure. By her advice I waited awhile. I bought a dozen bottles. I took the medicine according to directions, for a month. Then I stopped for a month, and varied the test repeatedly until I became fully satisfied that it had no effect on me whatever. My explanation is something like this: There was a great excitement about the new medicine and its wonderful cures, made known by testimonials from great men. I was animated and enthusiastic over the idea of getting relief. I had *faith* enough to expect speedy results. The faith and the animation of testing *something new* seemed to bring what I hoped for. Perhaps the result was somewhat due to my specially hopeful organization. After I had finished eleven bottles my difficulty was a little worse than it had ever been before. I do not think, however, it did any harm at all *in my case*. (A teacupful of hot lemonade, just before going to bed, is the remedy I now feel like recommending.) I can tell you, however, of a case where the Safe cure *did* do harm. It resulted in the loss of the life of a most valuable man. He needed the advice of a competent physician. Dreading to consult one, however, he, like myself, was attracted by the wonderful promises of Warner's Safe Cure, so he depended upon that *instead* of upon the physician. When the doctor was *finally* summoned, it was too late. Had he first consulted even a member of his own family who was teaching physiology and anatomy, his life would, without question, have been saved. He, however, kept the matter to himself, and trusted in the patent medicine. My friends, these things can *never* take the place of the family physician and the pastor of your church.

Before I leave this matter of patent medicines I want to say that I do not believe it honest and upright to advertise by trickery. Any thing that can not be brought to the people boldly and squarely, I should be suspicious of. I also believe that the editor who humbugs his readers by giving them an advertisement in the reading-columns (couched in such terms as are generally used for reading-matter) will suffer for it sooner or later. Suppose, for instance, the druggist in your town should go to the doc-

tor, and say, "Look here, doctor, I have a great lot of old medicine on hand that is out of date. If you will recommend it to your patients I will give you half I get for it."

Now, suppose that the doctor should, in his smooth and natural way, tell his patients right and left that he had found something of great value at the drugstore, and that he could honestly recommend it for the very difficulty in question. No doubt both parties would get quite a lot of money. But, when you come to find out what had been done, how would you feel toward the doctor and toward the druggist? They would very soon be obliged to move out of town. It is the same with the editors of newspapers. They are expected to give advice as the family physician does; and if they abuse this trust, by recommending something they know nothing about, because they are *paid* for lending their name and influence, *we betide them*. It has been urged, that, when we employ our pastors to our separate churches, we hire them with money to pray for us. The statement is not true. The pastor of a church is employed, like the superintendent of a school or of a factory, to look after the *best interests* of all employed. Now, neither the pastor nor the school-teacher, nor the foreman of a factory, can do his work well, *in my opinion*, without being a praying man. But that does not mean that we pay him money to get him to pray.

A few days ago I found on my table a paper written by our stenographer, W. P. Root. It was in reply to a question from one of his fellow-workers as to what he thought of a certain journal devoted to Christian science. I think it will answer nicely to close our talk with to-day:

Friend L.—If you will but examine for a moment, what those Christian (?) scientists claim, you and I can have but one opinion of them. They claim, for instance, to cure disease by *thought*. They put Christ in the same kettle with a dozen imaginary characters in the poetical books of the Hindoos, coin a lot of big and unpronounceable words, boil the whole together, and call it Christian science. They ask us to throw aside all the conclusions of modern science in regard to medicine. I have no patience with a man who will put Jesus Christ's name down as a mere fetich, as of no more value than a horseshoe, to insure us against bad luck. Is it any wonder that such men should print large books, telling us what to do with children that are born when the planets are in a certain position in regard to each other? What sense is there in that, any more than in consulting the wagon-tracks in the road? The planets exercise no influence upon us, except to preserve the equilibrium of the solar system. If "fools rush in where angels fear to tread," this Christian science, or esoteric philosophy, is a splendid proof of it. Well did Christ say, that in the last days men should arise, deceiving, if possible, the very elect. But the greatest surprise is, that humanity at large can be so easily led astray by the talk of these men. They speak in a friendly manner of the Bible, of God, and of Christ; but Christianity has never had such terrible enemies as those that cast out devils in her name. We may be sure that God has given these men no particular measure of wisdom above

other people. Their pretensions are palpably absurd. Of course, some things they say are true; but these truths are mere spangles on a garment of falsehood. In its open attack on Christianity, infidelity has spent all its venom. Christianity has proved itself to be of divine origin by its fruits; and now Satan appears in another garb—that of a hand-maid—begging to walk along with Christianity. But of this be sure: At the last great day it will be said, "Depart, I never knew you." W. P.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all—the parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

TOMATOES AND TOMATO CULTURE.

Editor Gleanings:—

I am becoming enthusiastic over tomato culture in winter. We have only hard frosts here; no snow nor much ice; I want the kinds of tomatoes that bear the largest crop late. What kinds of tomatoes stand freezing best, have the largest crop of green tomatoes, late and strong grower, etc.? Nice tomatoes in winter bring a handsome price here as elsewhere, and no great protection is needed. Does the tomato stand heavy fertilizing, like strawberries and some kinds of vegetables?

Fresno, Cal., Nov. 12, 1889.

O. S. DAVIS.

Friend D., I should say that you have wonderful facilities for growing tomatoes in the winter time. As they are a tender tropical plant, however, you will need to protect them, not only from frost, but they seem to be a good deal injured when the thermometer gets down to about 40 degrees. Most plants, when the leaves are scorched by frost, will recover, and grow about as well as ever; but the tomato seems to be hurt clear down to its roots whenever even the tops of the foliage are frosted. I do not think there is very much difference in varieties, so far as standing cold is concerned. Perhaps in your locality a cold frame in a protected situation will be all that is needed. I am afraid, however, that you will need a little heat during severe spells. If the sash were so you could cover them with mats or shutters, you might be able to get along without any heat at all.—The Ignotum gives the largest crop of green tomatoes of anything we have ever had, and they are of a nice shape as a rule. We had wagon-loads on the ground, after frost this season. Some of them are fit to use after one or two or three pretty severe frosts. I believe, however, that the little pear or plum tomatoes will stand more freezing than any other variety. Only yesterday, Nov. 27, I took up some from the ground that looked to be sound and perfect, and they tasted almost as well as if they had not been frozen at all; yet I presume they have been frozen as hard as bullets more than a dozen times. In fact, we have had one freeze that would hold up a horse, and yet these toma-

atoes were scarcely harmed.—My experience is, that tomatoes will not bear fertilizing like strawberries. Of course, the manure gives large quantities of fruit; but they do not ripen with us before frost, near as well as when they are put on poor ground. To get the earliest of almost any thing, you need rather poor soil, on a hillside facing the south.

The October Bulletin of the Experiment Station of Cornell University, Ithaca, N. Y., is just at hand. This number is devoted entirely to tomatoes. Prof. Bailey says, in regard to the Ignotum:

This variety, which originated with the writer, is a sport from Eifforgie Dauer, a German variety. It appeared in a very large tomato test made in 1887. It was sent to several parties the following year, and a plantation of 500 plants was made by the writer. Last year it showed some tendency to revert, but careful selection has been practiced, and our plants this year, 422 in number, were all true to type, with the exception of the variation due to culture, as discussed on page 116 of this bulletin. The Ignotum is without question by far the finest market tomato which we have ever grown. Its particular points of superiority are large size, regularity of shape, solidity, productiveness, and uniformity throughout the season. It is the largest and heaviest of the perfectly regular tomatoes, and the most solid of any of the market sorts. The pickings from our patches this year were usually fit for market as they came from the vines; and the last picking, October 10th, after a long season, was scarcely inferior to the best picking of the season.

On the last page of their bulletin we find the following summary in regard to tomato culture:

1. Frequent transplanting of the young plant, and good tillage, are necessary to best results in tomato culture.

2. Plants started under glass about ten weeks before transplanting into field gave fruits from a week to ten days earlier than those started two or three weeks later, while there was a much greater difference when the plants were started six weeks later. Productiveness was greatly increased by the early planting.

3. Liberal and even heavy manuring, during the present season, gave great increase in yield over no fertilizing, although the common notion is quite to the contrary. Heavy manuring does not appear, therefore, to produce vine at the expense of fruit.

4. The tests indicate that poor soil may tend to render fruits more angular.

5. Varieties of tomatoes run out, and ten years may perhaps be considered the average life of a variety.

6. The particular points at present in demand in tomatoes are these: Regularity in shape, solidity, large size, productiveness of plant.

7. The ideal tomato would probably conform closely to the following scale of points: Vigor of plant, 5; earliness 10; color of fruit, 5; solidity of fruit, 20; shape of fruit, 20; size, 10; flavor, 5; cooking qualities, 5; productiveness, 20.

8. Solidity of fruit can not be accurately measured, either by weight or keeping qualities.

9. Cooking qualities appear to be largely individual rather than varietal characteristics.

10. The following varieties appear, from the season's work, to be among the best market tomatoes: Ignotum, Beauty, Mikado, Perfection, Favorite, Potato Leaf.

11. The following recent introductions appear to possess merits for market: Bay State, Atlantic, Brandywine, Jubilee, Matchless, and perhaps Lorillard, Prelude, and Salzer.

12. The following recent introductions are particularly valuable for amateur cultivation: Dwarf Champion, Lorillard, Peach, Prelude.

By the way, on the first page of the above bulletin I found a little paragraph from the pen of James F. W. Johnston, that pleased me so much I have given it a permanent place at the head of my talks on raising plants. See head of this department.

THE KUMERLE LIMA BEANS.

We have succeeded in saving a few seeds, but not many. The principal trouble with the bean seems to be the difficulty of getting the seeds to ripen up dry. They just stay fit to shell, for weeks and weeks. We covered them from frost quite a while, then pulled the stalks and put them in the greenhouse, but they kept green, even then. Finally we placed the pods on trays, and dried them by steam heat; but some of them molded, even then, before they had dried. Now, this is a splendid feature so far as having the beans to *cook* is concerned; but it is not very splendid where you want them for seed. In order to find out what they would be worth another season, I addressed a card to Thorburn, the introducer. Below is his reply:

Dear Sir:—We shall not have any of Kumerle's lima beans to offer this season. Yours truly,
New York, Nov. 14, 1889. JAS. M. THORBURN.

GLEANINGS IN BEE CULTURE.

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A. I. ROOT,
EDITOR AND PUBLISHER,
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For Clubbing Rates, See First Page of Reading Matter.

MEDINA, DEC. 1, 1889.

Then Saul (who is also called Paul), filled with the Holy Ghost, set his eyes on him and said, O full of all subtlety and all mischief, thou child of the devil, thou enemy of all righteousness, wilt thou not cease to pervert the right ways of the Lord?—ACTS 13: 9, 10.

WE have at this date, 9161 subscribers.

EARLY CATALOGUES.

THE first catalogue for 1890 that comes to hand is from Jno. C. Swaner, Salt Lake City, Utah. He advertises nursery stock and bee-keepers' supplies. We have just printed catalogues of bees and supplies for John H. Kunderling, Kilmanagh, Mich., and for F. W. Lamm, Somerville, O. We have also just finished the annual catalogue of J. M. Jenkins, Wetumpka, Ala., which all our Southern friends will do well to send for.

GLEANINGS AND THE A B C BOOK FOR COUNTY INFIRMARIES.

MRS. CHADDCK mentioned, at the close of her article on page 951, the advisability of sending sample copies, etc. We will with great pleasure furnish a copy of the A B C book, and GLEANINGS regularly, without charge, to any infirmary or asylum for the insane, in Wisconsin, or any other State or place in the world, where there is anybody interested enough in bee-keeping to care for it.

LOOK OUT FOR HIM!

B. G. LUTTRELL, formerly postmaster of Luttrell, Dekalb Co., Ala., is complained of by several bee-keepers. He probably obtained credit by the fact of his being postmaster. As a rule, postmasters are supposed to be good straight square men; but we find now and then an exception. It seems to me, however, that there is a wrong somewhere, when a

man who is not responsible is given such an important position.

HORSE-RACING AND FAIRS.

TWO of the friends take me to task for recommending fairs while so many of them encourage horse-racing, gambling, lotteries, etc. I am well aware of this; but it is not true that *all* fairs encourage even horse racing. Intoxicating liquors are, I believe, ruled out from most of them. Games of chance are fast following in their wake, and quite a few counties are holding excellent fairs without any horse-racing. If it is thought best I can publish a list of these last. So long as fairs are mainly for the encouragement of agriculture, the arts, and industries, I am sure it is not best to turn our backs on them, even though most of them have these objectionable features. Let all the good people attend, be present at the annual meetings for discussing these matters, and let us work for these reforms that are still under way.

PRICE OF ALFALFA SEED.

ON page 954 we are told that alfalfa seed is worth \$3.00 per bushel in Kansas. In our catalogue the price is given as *ten dollars* per bushel; and, in fact, considerable quantities were sold a year ago at \$10.00 per bushel. This looks rather bad. Now, if any of the bee-friends have alfalfa seed for sale at any thing like \$3.00 per bushel, please let them speak out, and we will remodel our price list. By the way, I think it will be an excellent idea to give it a pretty good test on a small scale in a good many localities. Of course, it will not pay for the honey alone; but if it will pay for the hay, even though we should have to irrigate during a severe drouth, it may thus indirectly be of great value to our industry.

JAPANESE BUCKWHEAT, AGAIN.

SINCE my Special Notice on page 970 was put to press, still larger lots of Japanese buckwheat have been offered us in such quantities that the best offer we dare make at present writing (Nov. 29) is 50 cents per bushel, of 50 lbs., in cash, or 60 cents in trade, delivered here. This is for nice clean seed, suitable to sow. We do not know how long we can keep even this offer open, nor can we at present state definitely what will be our selling price. It will depend upon how much is sent in at the above figures. Truly the Japanese buckwheat is one of the greatest improvements, in a single line of grain, of the present age. All other kinds of buckwheat can well be thrown aside; and not only the bee-keepers of our land, but farmers in general, can unite in tendering a vote of thanks to our enterprising seedsman, Peter Henderson. Buckwheat flour, first quality, York State, is now offered in the city of Cleveland at \$2.00 per cwt.

FALSE STATEMENTS.

THERE are quite a good many who hold persistently to the idea that comb honey is manufactured; and I am sorry to see in some of the papers the absurd statements about artificial eggs still given. When we remonstrate, a good many say that more wonderful things than making artificial eggs and artificial honey-comb are being done every day. True; but, my dear friends, the great progress that is being made in the arts and industries is not in line with fraud at all. It is the reward of honest, faithful, and persistent work. The man who dares to perpetrate a fraud upon humanity, especially in the line of food products, is bad and

unprincipled; and it would be a sad thing indeed, if it were true, that God blesses frauds in that line, as he does in the line of honest investigation. The Bible says, "Blessed is the man that walketh *not* in the counsel of the ungodly." It also says, further along, in speaking of the same man, "He shall be like a tree planted by the rivers of water; and whatsoever he doeth shall prosper." Now, the progress of the 19th century has not, and never will, set these old Bible teachings aside; on the contrary, if we look carefully we shall find it is exactly in a line with them.

MAILING BEES BY THE POUND.

WE notice that friend Doolittle considers the matter practicable, and defends it. In the *American Bee Journal* for Nov. 16 he enumerates some of the benefits that would accrue if it should be accomplished. Now, I think I can see more important results, even, than he mentions, if this were possible. A great many people of limited means ask the question, "How cheap can I get a start in bees?" Some boy or girl, or perhaps a widow of small means—one who has leisure, and who has become greatly interested in the industry, would like to know if a start could be made by getting a queen-bee and a few attendant bees by mail. Again and again we explain to them that it is impossible. Then comes the question, "If they order by express, what will the express charges be?" Very often, more than the bees and queen. Now, then, if half a pound of bees could go along with the queen, \$2.00 would cover the cost of the start, transportation and all; and from this investment of \$2.00 a whole apiary might be built up; for with careful management during the month of May or June a queen and half a pound of bees could be built up to a good colony, and that, too, without any comb or brood. May be it could be done with a quarter of a pound of bees; but it would, perhaps, be a little doubtful. I thought of this years ago—yes, when I first commenced sending out little swarms of bees in the wire-cloth basket; but I have always finally decided, as I do now, that no kind of cage can be made, stout enough and still light enough, to make it safe to risk by mail, as there is so much throwing and banging, the way our mails are handled. I am, however, open to conviction.

SEEDS OF HONEY-PLANTS.

THE trade in these has dropped off greatly. In fact, it has been dropping off for two or three years past, and I am very glad of it. It really gives me pain to get a letter from a beginner in bee culture, indicating that the writer has an idea that, because he has half a dozen colonies of bees, he must "plant something" in his garden so as to furnish honey for them. Quite a few seedsmen have been encouraging this idea, prominently among them being Mr. Samuel Wilson, who has recently recommended and brought out under a new name our old well-known spider plant. Every effort that I know of, to raise plants *exclusively* for honey, has failed, and I think must fail. If you have only half a dozen colonies you need at least an *acre* of the plant in question to do any good. Now, if said plant gives you a profit for seed or for hay, aside from what honey it furnishes, well and good; but please do not plant an acre, or even a little patch in the garden, *exclusively* for honey. If you can arrange with the farmers around you to grow buckwheat, alsike, or rape, well and good; for an acre of these may be

worth four or five dollars to you. At the same time, it *may not* benefit you at all. If circumstances are such that you can not plant your bees beside a field of a *hundred* acres of buckwheat or alsike or rape, or even teasel, there is quite a chance that you may get honey by the ton, from these sources alone; but if instead of a hundred acres you say a thousand, then there is a chance for something worth while; and our friends in Nevada, Arizona, and other western points where alfalfa is raised by means of irrigation, are doing just this very thing. If sweet clover could be made use of for some purpose besides the honey it furnishes, there would be a possibility of profit in that direction; but I do not see how anybody can raise sweet clover or *any thing else*, simply for the *honey* it furnishes, and get his money back.

SPECIAL NOTICES.

ADVANCE IN WIRE NAILS.

Owing to large advance in cost of raw materials, we have to pay higher prices for wire nails. There will be no change in the 1 and 10 lb. rates, but we can not sustain the 25 and 100 lb. rates in our catalogue.

ALSIKE AND WHITE DUTCH CLOVER.

If any of our readers have for sale any choice seed of alsike or white Dutch clover, will they please send us small samples, and say how much they have, and what they want for it? We are entirely out of white Dutch clover, and should like some of that as soon as we can get it.

ADVANCE IN PRICE OF TIN.

Tin plate has already advanced about 50c a box on 14 x 20 size, and at the same rate for larger sizes. The prices don't seem inclined to stop advancing yet. We were fortunate in having contracted for most of our supply for next season before the advance, and therefore we will ask no more than our catalogue price at present; but we can not discount these prices for early orders.

VANDEUSEN SPACING IRON CORNERS.

These corners were illustrated in GLEANINGS, page 514, 1889, and a number of readers have inquired where they could get them made for 1½-inch spacing, the original corners being made to space 1½ inches. We are at present working on a pattern, and expect soon to have corners to offer for sale that are made to space 1½. As soon as we have them ready we will mention it in this department, giving the price.

ANOTHER REDUCTION IN THE PRICE OF WIRE NETTING.

We omitted to mention, in last number, that you would find on the last cover page of our premium list our new and reduced prices on poultry-netting. We are now selling a single bale at the same rate as we sold 10 bales, which, for 2 inch. No. 19, 4 ft. wide, in rolls 150 ft. long, is \$4.00 per bale; 5-bale lots, \$3.75; 10-bale lots, \$3.60. We make this big reduction, too, in spite of the recent large advances in the cost of steel and wire goods.

JAPANESE BUCKWHEAT.

In my plea for seedsmen, in our issue for Nov. 1, I tried to tell you why they should have a good margin for their seeds. Well, we are just now pretty well stocked up with a great lot of Japanese buckwheat that cost us over a dollar a bushel. We thought that it would certainly be safe to lay in a good lot at that price; but we now find that the supply is so great that we should be very glad indeed to close it out for a dollar a bushel, you to pay for the bag. A good-sized bag, suitable for shipping two bushels of grain, is worth 20 cts.; one bushel, 15 cts.; half-bushel, 10 cts. Of course, there may be a reaction; therefore, if you want to avail yourself of this offer, you must take it between now and the first of January.

Sturwolds' Show-Case

FOR THE PROTECTION AND DISPLAY OF HONEY.

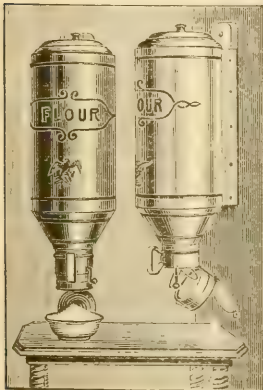


In well-equipped retail stores you will find many goods displayed in show-cases. This is because, from their nature they are liable to damage from dust, exposure, and frequent handling. What is more worthy a place under glass than our honey? By adding to its attractiveness it calls the attention of more people to it, and thus increases its sale. We have just made a new lot of cases, similar to the one shown above. We have used chestnut instead of walnut, and have improved the construction of the case so as to make it stronger, lighter, and simpler. To save transportation charges we can finish these all up and then take out the four corner standards and ship "knocked down" and securely boxed. They will thus go as first-class freight, while put up they charge three times first-class rates by freight. By express there would be no difference. Price of the case, put up with glass in, or boxed separately, or knocked down and boxed any of the three ways, will be the same—\$4.00. With name and address on the front glass, \$4.50.

A. I. ROOT, Medina, Ohio.

TYLER'S FLOUR-RECEPTACLE

A MUCH-NEEDED HOUSEHOLD CONVENIENCE.



This is the most convenient arrangement for flour that we have ever seen. It holds just a 49-lb. sack of flour. It is to be hung on the wall just above your table. When you want some flour simply place your pan under it, open the lid on the bottom and turn the crank and you get your flour already sifted. It is simple, neat, and effective, and not expensive either. Price \$2.75 each, crated ready for shipment, or giving

free for 8 subscribers, with \$8.00.

T., Medina, O.

LITHOGRAPH LABELS

In 12 Colors, at \$2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2½x3½. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 35 cts. for 100; \$1.20 for 500; \$2.00 for 1000.

A. I. ROOT, Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

I unpacked the barrel and crate to-day, and found every thing in place. Your work fits, to a gnat's heel. The freight for both was only 67 cts., which strikes me as very moderate. By mixing up the Dove-tail and Simplicity, I can make a hive to suit myself at least.

A. T. GOLDSBOROUGH.

Washington, D. C., Dec. 5.

Last spring I sent to you for "First Steps for Little Feet," as a birthday present to our youngest son. You ought to have seen that happy face. He has read it through several times. Please send me the "Story of the Bible." It is a birthday present to our oldest son. He will be 16 the 4th of August.

A. SHIFFLER.

Roseland, Neb., July 17, 1889.

THAT DOLLAR QUEEN, AND HOW SHE EXCELS ALL OTHERS.

That dollar queen I got of you last year is producing the best workers I have. She and her daughters gave me 140 lbs. of extracted honey per colony; the rest of my bees averaged 80 lbs. per colony. They seem to be always at work when the rest keep at home.

F. H. THIELE.

John's Pass, Fla., Nov. 4, 1889.

THAT QUEEN TO OREGON, IN A BENTON CASE.

The untested queen sent me was received Oct. 1, just seven days en route. She was a beauty, and just as smart as a cricket. I introduced her without much trouble; I fed a little for a night or two, to stimulate laying. On the 21st she had brood in all stages, and yesterday I noticed a fine lot of young Italians out taking a play; so you see I am well pleased with my queen.

A. A. MORRILL.

Glenwood, Ore., Nov. 15, 1889.

LETTER FROM MINNIE CHADDOCK.

Dear Friend:—We received a card last week stating that there were five dollars due us for our dear mother's writing, and that you would send GLEANINGS this year if we would accept. There is no "if" in the way; we accept heartily—would be lonesome without it. My brother Irving will take charge of the bees; and as he has had very little experience, will need GLEANINGS very much. Thank you for all your kindness to us.

Vermont, Ill., Dec. 10. MINNIE M. CHADDOCK.

PLEASED.

We owe you our sincere thanks, and know of no better way of expressing ourselves than to tell you how we have succeeded in the bee-business by following your directions in the A B C of Bee Culture, and using your style of hive, the Simplicity. Last spring we bought two colonies of bees in American hives, for which we paid \$6.00. In July I found a bee-tree, and saved the bees. I transferred them from the tree into a nice clean Simplicity hive, and they filled the lower story full, and made 50 lbs. of surplus honey. We have increased from the two old colonies to eight in all. Three of the new ones have two swarms in each hive. That is how they did in the way of swarming. Now as to honey: Every colony has the lower story of its hive full of honey, and all are in fine shape for going into the winter. They made, of surplus honey, 200 lbs. in one-pound sections. All the above was done with two colonies, with the aid of one more after the first of July. We owe our success to you for the good advice you give us in the A B C book, for which we tender our sincere thanks.

Jamesport, Mo., Dec. 5, 1889.

C. K. GWINN.

A No. 1 EXTRACTED HONEY, CHEAP.

Send for New Prices.

JAMES HEDDON, DOWAGIAC, MICH.

FOR SALE.

A well-established apiary business, located in the best section of Iowa. Established ten years. Good trade. Building located on main street; for \$500.00. A bargain. Also 50 stands of bees, in good "L." hives, at \$4.00 per stand. Reason for selling is age, and other matters requiring my attention.
E. W. COE, Clarence, Cedar Co., Iowa.

ODD BUT TRUE.

Send me the names of 10 regular subscribers to the American Agriculturist, or Ladies' Home Journal, and I will give you next season your choice of the following: 1 untested Italian queen, 13 Laced Wyandotte eggs, 13 B. Leghorn eggs, or 10 S. S. Hamburg eggs. All I want is the names of 10 persons who take either of the papers. Write for catalogue of nearly 2000 papers at reduced rates.

C. M. GOODSPEED, Thorn Hill, N. Y.

(In responding to this advertisement mention GLEANINGS.

Save 10 Per Cent.

SAVE TEN PER CENT AND ORDER YOUR SUPPLIES THIS MONTH.

We carry a complete stock of Sections, Hives, Smokers, etc. Illustrated catalogue for your name on a postal card.
R. B. LEAHY & CO.,
23-1db Higginsville, Mo.

(In responding to this advertisement mention GLEANINGS.

LOOK HERE!

Bee-Keepers and Fruit-Growers, before you order your supplies for 1890, send for my catalogue and price list of **Bee-Keepers' Supplies** and **Strawberry Plants**. Twenty-five approved varieties grown for this season's trade. Prices reasonable. **Bees and Queens** for sale; \$1.00 queens a specialty. Address **F. W. LAMM**, 24-23db (Box 106.) **Somerville, Butler Co., Ohio.**

LIGHT BRAHMAS, Felch strain, only \$3 to \$4 per trio, if ordered now. Also a few W. P. Rocks to spare. Eggs in season from five leading breeds. Circular free.
S. P. YODER, E. Lewistown, Mah. Co., Ohio.

A Four-Color Label for Only 75 Cts. Per Thousand!

Just think of it! we can furnish you a very neat four-color label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½ x 1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, Ohio.

WANTED.—For sale or exchange, good small farm with apiary. Fine honey country.
Box 65, Amherst, Va.

WANTED.—To contract with bee-keepers using 5000 and over sections—to supply them at let-live prices.
C. A. GRAVES, Birmingham, O.
24-27

FOR SALE at a sacrifice, 120 stands hybrid and Italian bees, on L. frames; crop of '89, 100 lbs. per colony.
24-1d B. A. RAPP, Chillicothe, Mo.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All ads intended for this department must not exceed 5 lines, and you must say you want your ad. In this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements.

WANTED.—To exchange honey for beeswax. We will take beeswax in exchange for honey in any quantity. Will give three pounds for one. Write for particulars.
CHAS. DADANT & SON,
18tfdb Hamilton, Hancock Co., Ill.

WANTED.—To exchange 200 colonies of bees, 2 foot-power saws, and one foundation-mill and tanks, for any thing useful on plantation.
22tfdb ANTHONY OPP, Helena, Ark.

WANTED.—To exchange Japanese buckwheat at 75c per bushel, or No. 1 sections, for extracted honey.
W. D. SOPER, Jackson, Mich.

WANTED.—To exchange a fine-blooded stallion for Italian bees. Will take a quantity of sections and foundation. A bargain for somebody.
J. H. JOHNSTON, Leclair, Iowa.

WANTED.—To exchange religious reading-matter FREE to ALL who will send their address to
Box 1516, Fresno City, Cal.

WANTED.—To exchange a Given Press, L size, in good shape, for first-class photographic outfit, or offers.
24-1d C. A. GRAVES, Birmingham, O.

WANTED.—To exchange Simplicity hives complete, for comb and extracted honey, for saws and groovers to make brood and wide-frames, or offers.
E. J. SHAY, Thornton, Taylor Co., W. Va.
24tfdb

WANTED.—To exchange 1-piece sections and bee-hives for extra'd white clover or basswood honey or beeswax.
J. M. KINZIE,
24tfdb Rochester, Oakland Co., Mich.

WANTED.—Situation. A young married man of 26 years, without children, wishes a situation with a good Christian bee-man to work on bees and do light farm work. A supply-dealer who makes his own supplies preferred, as I have had 10 years' experience with wood-working machinery.
24d W. H. DICKINSON, Deep River, Conn.

WANTED.—To exchange corn - sheller, cost \$75; fence loom, cost \$150; very low, used but little, for bee-supplies, or offers. Write for particulars.
Address 24d THOMAS & KISSEL,
Horatio, Darke Co., O.

WANTED.—Extracted honey, in exchange for printing, seeds, plants, etc. Write.
CHRISTIAN WECKESSER, Marshallville, O.

WANTED.—A bee-man for the season of 1890.
FILMORE COLE, Lima, O.

WANTED.—To exchange a sample copy of the South Florida Home for your name on a postal card. Address SOUTH FLORIDA HOME, 24d
Charlotte Harbor, Fla.

WANTED.—To exchange bees, hives, frames, or foundation, for honey. Send for particulars.
F. A. DAYTON, Bradford, Ia.

Engines & Boilers.

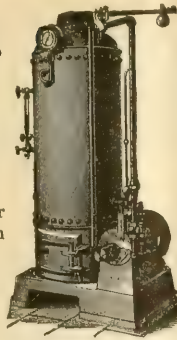
Complete Outfit, or
Engine Alone.

The Best and Most Sub-
stantial Engine Made.

Fully guaranteed. Send for
circular and price list. Mention
this paper.

MEDINA ENGINE CO.,

20tfdb Medina, Ohio.



FOR FOLDING PAPER BOXES send to
21-8db A. O. CRAWFORD, S. Weymouth, Mass.

APIARIAN SUPPLIES CHEAP.

BASSWOOD V-GROOVE SECTIONS, \$2.75 to \$3.75
PER M. SHIPPING-CASES VERY LOW.
SEND FOR PRICES.

COODELL & WOODWORTH MFG. CO.,
3tfdb ROCK FALLS, ILLINOIS.

In responding to this advertisement mention GLEANINGS.

BEEES
16tfdb

SEND for a free sample copy of the
BEE JOURNAL — 16-page Weekly
at \$1 a year—the oldest, largest and
cheapest Weekly bee-paper. Address
BEE JOURNAL, Chicago, Ill.

THE BEE-KEEPERS' REVIEW.

A 50-cent monthly that gives the cream of apicul-
tural literature; points out errors and fallacious
ideas; and gives, each month, the views of leading
bee-keepers upon some special topic. Three sam-
ples free.

W. Z. HUTCHINSON, Flint, Mich.

In responding to this advertisement mention GLEANINGS.

Bees and Poultry
ees and Poultry

The Canadian Bee Journal and Poultry Weekly is
the best paper extant devoted to these specialties.
24 pages, WEEKLY, at \$1.00 per year. Live, prac-
tical, interesting. Nothing stale in its columns.
Specimen copies free. Subscribers paying in ad-
vance are entitled to two insertions of a five-line
adv't (40 words) in the Exchange and Mart column.
THE D. A. JONES CO., BEETON, ONTARIO, CAN.

SAVE FREIGHT.

BUY YOUR SUPPLIES NEAR HOME AND
SAVE FREIGHT.

We carry a complete stock of Apiarian Supplies.
Our motto: Good goods and low prices. Illustrated
catalogue for your name on a postal card.

R. B. LEAHY & CO., Higginsville, Mo.

In responding to this advertisement mention GLEANINGS.

MUTH'S HONEY-EXTRACTOR,

SQUARE GLASS HONEY-JARS,

TIN BUCKETS, BEE-HIVES,

HONEY-SECTIONS, &c., &c.

PERFECTION COLD-BLAST SMOKERS.

Apply to CHAS. F. MUTH & SON,
CINCINNATI, O.

P. S.—Send 10-cent stamp for "Practical Hints to
Bee-Keepers." (Mention Gleanings.) 1tfdb

The Ullmann & Philpott Mfg. Co.,

89-93 MERWIN ST., CLEVELAND, O.

Manufacturers of Fine Black and Colored

PRINTING INKS.

This Journal is Printed with our Inks.
24-22d

TILLINGHAST'S NEW FLORAL ALBUM

Is not a seed catalogue but a magnificent
volume containing 270 Elegantly Colored
Plates, making the most Beautiful and
Extensive Collection of Floral Lithographs
ever published. The first copy cost over
\$2000.00. I will mail one copy for intro-
duction on receipt of 50 cents.

ISAAC F. TILLINGHAST, La Plume, Pa.

In responding to this advertisement mention GLEANINGS.

SECTIONS and FOUNDATION.

WHOLESALE AND RETAIL.

All supplies cheap. Send for new price list free.
Japanese buckwheat, 75 cts. per bushel.

22tfdb

Box 1473.

W. D. SOPER,

Jackson, Mich.

YOUNG Italian Queens by Return Mail.

Untested, \$1.00. Tested, \$1.50. Albinos, un-
tested, \$1.00. Tested, \$1.50.

J. W. TAYLOR, Ozan, Hempstead Co., Ark.

FOR SALE!

One of the best located apiaries in Iowa, 150
Colonies, in Langstroth hives. Handsome two-
story frame residence. Twenty acres land. All
necessary out-buildings. Also fine flock White Wy-
andottes. Two cows, nice span driving horses. Never
a failure of honey. White clover, basswood, gold-
en-rod, buckwheat, etc. House nearly new, nicely
decorated paper, a very pleasant home. Price
\$2500.

23tfdb

C. A. SAYRE,

Sargent, Floyd Co., Iowa.

In responding to this advertisement mention GLEANINGS.

ECES, \$1.00 PER 13.

From White Leghorns and White Plymouth Rocks.
Also a few cockerels, cheap. C. W. CHAPMAN,
Reference, A. I. Root. Medina, O.

BEE-HIVES, SECTIONS, ETC.

We make the best Bee-Hives, Shipping-Crates,
Sections, etc., in the world, and sell them the
cheapest. We are offering our choicest white one-
piece 4¼x4¼ sections, in lots of 500, at \$3.50 per 1000.

Parties wanting more, should write for spe-
cial prices. No. 2 sections, \$2.00 per 1000. Cata-
logues free, but sent only when ordered. 1tfdb

C. B. LEWIS & CO., Watertown, Wis.

In responding to this advertisement mention GLEANINGS.

Ho! Ye in Dixie Land!

LEARN SOMETHING NEW

Of Interest to You in my New 1890 Catalogue

MAILED IN DECEMBER.

Enlarged, and prices reduced. It gives LOW
SPECIAL FREIGHT RATES to many Southern
points, especially to points in TEXAS.

Southern Bee-Keepers, Send for it NOW.

J. M. JENKINS, - Wetumpka, Ala.

In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Our market has been inactive for the past month, and the demand for comb honey has been light in consequence of the unusual mild weather, with prices gradually declining. We quote: Fancy white 1-lb. sections, 13@14; 2 lbs., 12; off grades, 1 lbs., 11@12; 2 lbs., 10@11; buckwheat, 1 lb., 10@11; 2 lbs., 9. Extracted is in good demand at the following prices: White clover and basswood, 7½; California, 7½; orange bloom, 8@8½. Buckwheat, 6; Southern strained, 7@7½ per gallon.
Dec. 6. HILDRETH BROS. & SEGELKEN,
28 and 30 West Broadway, N. Y.

CHICAGO.—*Honey.*—Trade is slow at this writing, and the last week's sales are not as good as those of the preceding week. The falling off in sales during December compared with same time in November, is forty per cent. Prices are nominal, at 12@13 for best grades, to 14 for fancy in cartons; off grades, 10; dark, 8@10; extracted, 6, 7, and 8. *Basswood*, 25.
Dec. 9. R. A. BURNETT,
161 South Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Honey selling slow; don't look for much improvement in the demand until we get colder weather. We quote: White 1-lb. sections, 13@14; amber, 10@12; white, 2 lb., 12@13; amber, 10@11. Extracted, white, 7@8; amber, 5@6. *Beeswax*, 22.
Dec. 9. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

COLUMBUS.—*Honey.*—Market on honey dull. White clover brings 14@15 for fair grade. Nothing but first-class goods find sale. Extracted honey meets with ready sale at 8@9. Market about cleaned up on that class of goods. EARLE CLICKENGER,
Dec. 10. Columbus, O.

BOSTON.—*Honey.*—We quote fancy 1-lb. white clover honey, 16@17; fair to good, 15@16; 2 lbs., 15@16. *Beeswax*, 24.
Dec. 9. BLAKE & RIPLEY,
57 Chatham St., Boston, Mass.

ALBANY.—*Honey.*—Market quiet and unchanged. Clover, 12@15; buckwheat, 10@11; mixed, 10@12. Extracted, clover, 8@10; buckwheat, 6@7.
Dec. 10. H. R. WRIGHT, Albany, N. Y.

CLEVELAND.—*Honey.*—Market easy. Best white 1 lb. sections sell slowly at 13@14.
Dec. 9. A. C. KENDEL, Cleveland, O.

DETROIT.—*Honey.*—Comb honey dull and lower; now quoted at 12@14. Extracted, 7@8. *Beeswax* firm at 24@25.
Dec. 9. M. H. HUNT,
Bell Branch, Mich.

NEW YORK.—*Honey.*—White comb honey, paper cartons, 13c. Market flooded.
Dec. 10. THURBER, WHYLAND & Co.,
New York City.

FOR SALE.—White basswood honey, 8 cts. per lb.; dark, 6 cts. My honey is all put up in barrels, kegs, and pails, made of basswood lumber. The pails are painted, and have bails. AUSTIN DEXTER,
Boscobel, Wis.

FOR SALE.—About 2500 lbs. No. 1 clover honey in 60-lb. cans. F. O. B. here at \$4.80 per can, boxed singly. In kegs or large lots, less. R. L. TUCKER,
Nevada, Vernon Co., Mo.

FOR SALE.—I still have about 4000 lbs. choice extracted white-clover honey. I have also about as much nice Spanish-needle honey, which I consider as fine as the best goldenrod. Write me for price list. EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Choice clover comb honey in 14-oz. sections, and glass cases of 12 lbs. each, net, 2 cases, 14 cts. per lb.; 12 cases, 13 cts. Amber honey, same shape, one cent less. Cheaper packages, ¾ ct. less. Extracted, 60-lb. cans, white, \$4.80; amber, \$4.20 per can. Safe arrival guaranteed.
OLIVER FOSTER, Mt. Vernon, Ia.

A BARGAIN.—Sixteen colonies of hybrid bees in L. hives, in good condition. Delivered at Horn Lake, for \$35.00, or offers. Correspondence solicited.
J. R. ELMORE,
Horn Lake, Desoto Co., Miss.

WANTED.—To exchange Spider plant, Catnip seed, Turner, Mammoth-cluster raspberry, plants, for Japanese buckwheat, bee-books, or offers.
G. M. WHITFORD, Arlington, Neb.

SPECIAL NOTICES.

DISCOUNTS FOR EARLY ORDERS.

Remember that the 3 per cent discount for early orders is changed to 2 per cent Jan. 1, 1890.

JAPANESE BUCKWHEAT.

We cancel all former offers on Japanese buckwheat by this one, 40 cts. cash or 50 cts. trade, per bu. of 50 lbs. choice seed, delivered here. Extra for bags to ship it in.

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This book, illustrated in our premium list, is a magnificent volume, gilt title and gilt edge. Nothing is nicer for a Christmas present. The publisher, in closing out this particular style, gave us a very low price, and we offer them to you at \$1.50 each, or by mail for \$1.80.

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We have a large stock of both comb and extracted honey that can not be excelled in quality. If any of our readers are wanting honey, write us for prices naming quantity you can use. We offer the comb honey, 24 or 42 sections to the case, net weight about 23 and 36 lbs. respectively, at 16 cts. per lb., 1 to 5 case lots. Extracted clover or basswood in 60-lb. sq. cans, 2 cans in a case, at 9 cts. a lb.; in 550-lb. barrels, at 8 cts.

TWO MORE BOOKS BY THE AUTHOR OF THE STORY OF THE BIBLE.

We have just put in stock the two following books, which will make excellent additions to any library, public or private. The *Story of Bible Animals*, by J. G. Wood, is just the same size as the *Story of the Bible*, 704 pages and 300 illustrations. It is a description of the habits and uses of every living creature mentioned in the Scriptures, with explanations of the passages in which reference is made to them. Price \$1.50, postpaid, or \$1.30 by freight or express with other goods.

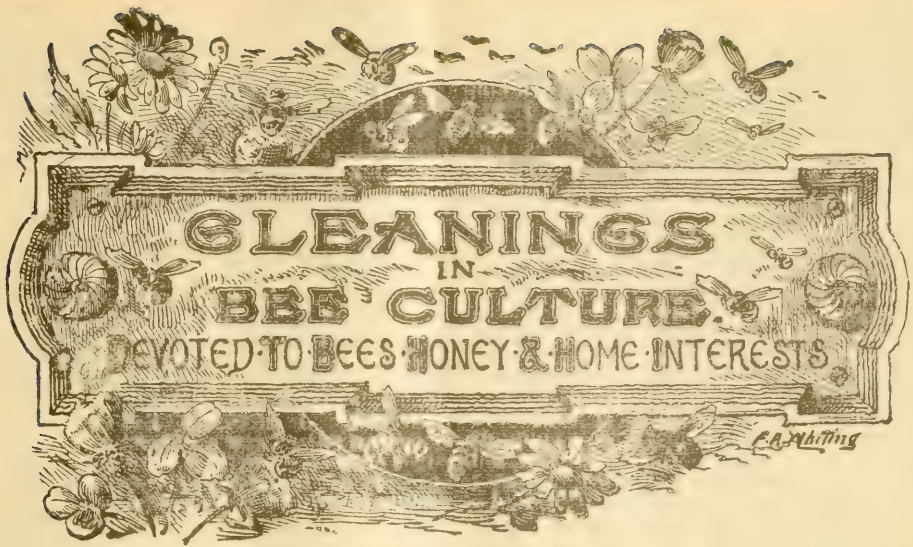
Bible Pictures, and What They Teach Us, is a handsomely bound book, 8½x10 in size, 232 pages, 312 illustrations, with descriptions by Chas. Foster. An agent, who has had large experience in selling books of different kinds, says none sell as readily as this. Price \$1.50, postpaid. Parties wanting a quantity will please write us for prices.

MANUAL OF PHONOGRAPHY, AND OTHER GOOD BOOKS.

It is not alone garden-seeds, but a good many other things, that lie on our shelves and get out of date, if we don't look out. By "we" I mean us store-keepers. We found in our vault, where we keep our books, 20 copies of the "Eclectic Manual of Phonography," by Elias Longley. Our stenographer says these are admirable helps in this branch of phonography, which is known the world over as Pitmanic. Now, the price of the books is \$1.00, and I think they cost us 75 cts.; but if anybody wants one he can have it for 40 cts. If sent by mail, 6 cts. extra. The book was published in 1882.

We also have 40 copies of W. W. Rawson's little book, "Celery and its Cultivation." We regard it as the best authority, and I have taken pains to read carefully all of the pamphlets that have been published. By some mistake they received only an editorial notice, and never got into our catalogue. The price is 15 cts.; by mail, 16. It tells all about putting up celery for winter.

There is just one more book that does not sell—Household Conveniences—published by O. Judd & Co. The price is \$1.40; by mail, \$1.50. The book is full of valuable illustrations, and it ought to make a beautiful present for any housekeeper. Do you know any housekeepers around in your neighborhood? Well, you may have the book for an even dollar; by mail, 10 cts. extra.



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No. 24.

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WORKING FOR COMB HONEY.

DOOLITTLE ANSWERS A PECULIAR QUESTION.

THE following has been sent in to me as a text from which to write an article for GLEANINGS: "How to manage a home apiary of 50 colonies for comb honey, in connection with another business, said business to occupy the apiarist's time from 7 A. M. to 6 P. M. Increase desired, 30 colonies, or the apiary to contain 80 in the fall. Hives, eight-frame Simplicity." This is a good deal of ground for me to cover in the space allotted for one article, but I will do the best I can. We are also to understand that the source from which a surplus of honey is gathered is only white clover and heart's-ease, other flowers yielding enough for brood-rearing in good years. Now, we will suppose these bees to be in fair condition in early spring, which, according to my definition of that term, would be about 10 colonies extra good, 20 colonies from good to medium, and the remaining 20 from medium to weak. As white clover is the thing we are to keep our eyes on for the main crop of white honey, we must have our bees ready for it as early as the tenth to the fifteenth of June, or we lose this part of our field. Considering this, I should, in early spring, shut the bees of all the colonies, except the 10 strongest ones, on as few frames as they would cover, allowing none of those so contracted to have more than five combs, while the very poorest would probably not have over two. This contraction is done by the use of a division-board; and if, in addition to this, we have chaff or sawdust cushions to slip down and fill the space behind the division-boards, we are so much nearer accomplishing our object (a good yield from clover) than we should otherwise be, for the confining of the heat generated by the bees to the space occupied with brood gives us much brood

early in the season. As soon as the strongest of these contracted colonies have their five frames filled with brood, take a frame of hatching brood from them and give to the next weaker, and so on till each hive has five frames filled with brood, as you are to give a frame of empty comb each time, to the colony that you take the hatching brood from. If you have been as successful as you should be, when the 10th of June arrives you will have 10 hives in the apiary having 8 frames of brood, for the stronger will have filled their hives by this time, and 40 hives with 5 frames of brood. We will now go to each of 20 hives and take out 3 frames having the most brood in that is the nearest to hatching, being careful not to get the queen on any of these frames, and set them, bees and all, into the other 20 hives which contain only 5 frames each, alternating them with the other frames so the bees will not quarrel. Having this done, we shall find that our apiary now stands, 30 hives full to overflowing with brood, and 20 hives with a queen and two combs full of brood, with bees enough to cover three frames, when the old bees return which we carried to the other 20 hives, which they will do the first pleasant day after we united them with the others. We now give each of these 20 small colonies an empty frame having a starter of comb foundation in it $\frac{1}{2}$ inch wide to keep them busy, which will be filled with worker comb by this small colony, as such colonies will build all worker comb, and do it without any apparent loss of time. The other colonies are to have the sections put on, so that the very first honey which comes from the field can go into them; and it must go into them, if honey is gathered, for the brood below hinders them from putting it elsewhere. As to the surplus arrangement used, I do not think there is very much difference whether a T super is adopted, wide frames, or the Manum, or Heddon case, only

that you use that which is best suited to your hives. If a cap, half-story cover, or hood, as it is variously styled, is used, then I would use one of the three first-named surplus arrangements; while if I used a flat cover I would use something similar to the Heddon case, if not that one.

Having the full colonies all boxed, and the bees well at work in the sections, they should be watched closely, to the end that they do not become crowded for room; for if they do, swarming will be brought on sooner than it otherwise would, and we desire to get the bees started in as many sections as possible before they swarm. As soon as they need more room, tier up the sections, by placing a set of empty sections filled with thin comb foundation on top of the first set (if the questioner used chaff hives, I would say use wide frames and the lateral plan which I have lately given in GLEANINGS), and so keep tiering up as long as the bees show no signs of swarming. When it is expected that they will swarm, the apiarist, when he gets home some night at six o'clock, is to go to such hive as he thinks will soon swarm, and set it from its stand, placing an empty hive in its place, which hive is to contain only five frames having foundation-starters in them, *a la* Hutchinson, the rest of the space being contracted with dummies. The surplus arrangement is now to be lifted off the old hive and placed on the new, when all the bees are to be shaken off the brood combs, and out of the old hive, in front of the prepared new hive, into which they will immediately run, when swarming is over with for that hive. The combs of brood are to be taken to the hives having the small colonies in them and given to those which can care for them best, giving none over three combs at a time. In this way keep on till all the colonies are "swarmed," when swarming will be through with for the season, for if properly managed in the heart's-ease bloom they should not swarm thus late in the season. As there will be more brood in the 30 strong colonies than you can put in the 20 weak hives, colonies are to be made from those whose hives were first filled out with brood, by taking one frame with adhering bees from each of 8 hives and setting them all together in one hive, and giving a queen, thus making a strong colony at once by the old plan so often given. In this way you make room for the rest of the brood and obtain the 30 increase desired. As soon as each hive is full of brood, these too are to have sections put on them, so that they may help swell the amount made by the stronger ones. When the harvest of white honey is over, take the dummies out from those hives having only 5 frames in them, and fill out with frames filled with foundation, so that lots of brood can now be reared to work on the heart's-ease later on when the surplus is to be obtained from this source. In this way we secure all the honey possible from the white clover by having the laborers in shape for that harvest; make our increase in a way and at a time so as to interfere the least possible with our crop, and get our bees in good shape for the fall crop and for winter.

Borodino, N. Y., Dec. 4, 1889. G. M. DOOLITTLE.

Very good, old friend. Had not our querist put in so many conditions, we might have differed from you a little; but as it is, I think you have it about right. When I used to keep bees, and could see them only morning, noon, and night, I adopted a good

deal the routine you mention. Where the apiarist can be on hand all the time, I think I would not swarm any of them until they swarmed themselves; but where he can not attend to that, perhaps the best way to avoid swarming is to take it into our own hands, and decide as you suggest.

THE INTERNATIONAL BEE-ASSOCIATION AT BRANTFORD.

ON THE WAY AND WHILE THERE, AS REPORTED BY ERNEST.

WE (myself and better half) started on the evening of the 3d for Brantford. With the other necessary baggage, I took along my Anthony Detective camera that I might take some views of the Falls, and also a view or two of the bee-keepers' convention. I had heard that amateur photographers had experienced some difficulty in getting their instruments over into Canada, even when they were for their own use. Accordingly, I inquired concerning the matter, at the Bureau of Information, at the Erie depot, at Buffalo. Said the agent, "Put on a brazen face, and make no effort to conceal the camera, and I'll guarantee you'll have no trouble."

On arriving at the Suspension Bridge at the Falls, I did as directed, "brazen face" and all. My camera and contents were worth about \$50.00; and the duty, if demanded, would amount to one-fourth, or over \$12.00. The custom-house officer inspected our sachel, and then, glancing at my camera, said, "What do you call that?"

"A camera. It is one I have had a couple of years, and I should like to take some pictures in Canada."

Said he, in a very gentlemanly manner, "It's subject to duty. While I should be glad to make an exception in your case, I am acting under the instructions of the government of Canada."

"Can't I leave it somewhere?"

"Yes," said he, "in the Custom-House office."

"But," I said, "you people will put me to considerable trouble in getting it out again. There is a lot of red tape in this business."

He assured me kindly, that on the presentation of my name on my return I could have it. With some misgivings I accepted what I could not help, and surrendered my instrument into the hands of the officer.

The train pulled out, and ere long we reached Brantford. We went immediately to the Kerby House, where special rates to bee-keepers, at \$1 50, had been secured, the regular price being \$2.00. By way of a parenthesis, I want to say that I have been to several three and four dollar houses, with no better (if as good) accommodations in the United States. Most of the bee-keepers, as a matter of course, took lodgings there.

The first person I met was Frank Macpherson, of the D. A. Jones Co., of Beeton. Frank and I, you know, had a little—well, argument—respecting the place of meeting for the last session of the American Bee As-

sociation; but that did not lessen the friendly grip of the hands, and the cordial greetings.

It was with no little pleasure that I made the personal acquaintance of that scholarly gentleman, Mr. S. Corneil, of Lindsey, and that prince of Canadian honey-exhibitors, Mr. R. McKnight, of Owen Sound.

I met many others, whose faces and names I could not remember, but whose greeting and friendship I appreciated no less.

Contrary to my expectations, there was a large attendance of bee-keepers at all of the sessions. While it was largely local, yet there were a good many from the United States and the more distant points in Canada. The Ontario Bee-Keepers' Association was well represented. The total number in attendance was in the neighborhood of 125; but not all of these were registered members. As a detailed report of the proceedings will appear in the *American Bee Journal* and other journals, I will not attempt to give even a summary of all of the interesting papers and discussions. I will only pick out here and there some of the things as they stick on my memory.

The president's address was a valuable contribution. It rehearsed the year's progress in apiculture, and was full of suggestions. I was sorry that it came close to the adjournment of the session, so that some of the things brought forward might be discussed. Somehow it was overlooked at the next session, for the president was too modest to bring it up himself.

The convention gave rather more attention to the subject of wintering than I thought was necessary or expedient. But one fact I noticed was, that there was less conflicting testimony on the subject than usual, and this is encouraging, for it indicates that this perplexing subject is gradually reaching a satisfactory solution. It was quite generally agreed, that bees *could be* successfully wintered outdoors packed in chaff, and that, while less skill is required, a larger consumption of stores is the result when compared with the indoor plan. Mr. G. Sturgeon, however, of Kincardine, after trying both ways, now uses the Root chaff hives exclusively, and winters very successfully every year; and, if I remember correctly, he said with no larger consumption of stores. As for cellar wintering, sub-earth ventilators were considered a useless expense. If they serve to lower the temperature, they answer a good purpose; but this result could be accomplished cheaper by opening doors or windows at night. It was decided that artificial heat is not only useless, but positively injurious. Roaring in the cellar does not indicate a desirable condition of the bees. Just how to stop it is not an easy thing to settle. Some interesting tables as to the minimum consumption of stores in cellar wintering were given in a valuable paper by R. McKnight, of Owen Sound. If correct, the rate of consumption per hive while in the cellar is astonishingly low. Corroborating testimony from others present was given.

When the subject of bee-keeping for wom-

en came up, there was not a uniformity of opinion. Considerable stress, however, was laid upon the point that bee-keeping is suitable for women, providing they could now and then call upon the men-folks to assist in the heavier work. The opinion did not seem to prevail that bee-keeping is a light occupation.

Shipping queens was considered by F. H. Macpherson, of the *Canadian Bee Journal*. He emphasized the point of putting up queens a few hours before shipping, and keeping them in the meantime in a dark place. For material for queen-cages, he prefers pine. He also said that too much ventilation is very often given. After Mr. Macpherson's paper, I brought up and explained the Benton cage. The great point in its favor is its almost universal success in shipping queens long distances. Considerable corroborating testimony was brought forward to this effect. Some queens, after a journey of forty days, have been found in most excellent condition, in this cage.

Warm hives, and how best to obtain, was discussed in a very able manner by Mr. S. Corneil. The relative values of packing materials, as determined by careful experiment, was given, and the result was in favor of pulverized cork.

One of the rare treats of the convention was the reading of a paper on the alimentary system or apparatus of the honey-bee, by Prof. Cook. The paper was illustrated by drawings, to which the professor referred frequently. I hope we may be able to present this, or something similar, to our readers, in a short time, accompanied by some good engravings. That most beautiful mechanism, the bee's tongue, and the manner in which it draws up honey under different circumstances is wonderful. It is something that every bee-keeper ought to have more or less knowledge of.

Bee-keeping as a hobby was the topic of a paper by your humble servant. I took the ground that every one needs some recreation. As I have been a rider of many different hobbies, I touched briefly on each, and decided most emphatically upon bee-keeping. In my paper I alluded to the fact that driving a good colt has been one of my hobbies, and that I had ridden this hobby so hard that I have been through a literal runaway on two occasions. After I had finished, Mr. R. L. Taylor took the floor, and made this very neat application: Hobby-horses are good things, but they are dangerous. We should be careful not to let our hobby-horses *run away with us*. He thought many of us would have made more money if we had let hobbies alone and given our whole time to business.

Our friend W. F. Clarke made another application upon hobby-horses, which I thought was far-fetched. He said that his friend A. I. Root was riding a hobby a little too hard over other people, and that was his tobacco hobby in the shape of the Tobacco Column in GLEANINGS. He did not approve of the plan of giving out smokers. He thought Mr. Root was pushing the matter a little too hard. Although a minister of the gospel, Mr. Clarke said that he uses tobacco, and

that he smokes it to the glory of God; and although he at first opposed its use, his brother and a physician advised him to use it, and he says he has since derived great benefit.

President Mason then took the floor, and remarked that a good many tobacco-users are riding their tobacco hobby-horses right in the *very faces* of the people who do not use it; that is, the tobacco-users *compel* other people to breathe in their offensive smoke, and to inhale tobacco odor. This was, he thought, a clear case of riding hobbies over other people. As to the matter of life or death, tobacco or no tobacco, the doctor thought that, if he had got to choose between a prolonged life *with* tobacco, and death and *no* tobacco, he would get ready to die just as soon as he could. He did not exactly approve of giving out smokers as a pledge.

Continued in next issue.

GOLDENROD

HOW TO GET THE WHITE HONEY, AND GIVE THE
BEES THE INFERIOR ARTICLE.

FRIEND ROOT:—On page 815 I mentioned extracting the crop of late summer honey, mostly peach and bitterweed, about Sept. 6th. It was to test what the goldenrod and aster yield would be, with the view, next season, of taking off that crop of second-rate honey in sealed combs, and substituting empty combs for the choice fall crop, then returning the sealed bitterweed combs for the bees to winter on.

On going through, and getting things in shape for winter, I find about as much choice honey in the hives as I extracted of second-rate in September. So it looks as if this late fall crop were worth trying for. If I should extract much of it now, however, I should have to feed back a considerable amount of extracted bitterweed, which is now very thick, and candying. Robbers would be troublesome, and any day may bring a cold snap; so I think they may keep most of what they have. But another season, will it not pay to have the extra combs ready, and try the plan outlined? Keeping the sealed combs of bitterweed honey free from moth depredations will be the chief drawback. I should be glad of some light on this late fall-crop business if any of your Southern readers have tried it.

GETTING RID OF STUBBORN FERTILE WORKERS.

An experience with a colony having a fertile worker may be of some interest. I recently purchased two Italian queens to introduce into two black-hybrid colonies. One was accepted, the other was killed; both were in Peet cages, and escort bees had been taken out before fixing the cages on the combs. Going away to assist a friend in introducing a lot of queens, I left my two to take their chances; and returning I found one dead before the entrance, the other laying. Both hives had had queens up to the time of introducing the new ones. Taking out all brood, unsealed from the hive now queenless, I gave them Italian brood, hoping in this way to get a purely mated queen, as I found the only drones flying were from a choice Italian colony. The bees would not even care for this brood, but carried it out. I then gave another comb, thinking the first might have been chilled. This brood they

raised "a la worker," but no queen-cells were started. By this time the few eggs scattered about, sometimes two in a cell, told "what was up." So, to demoralize the whole thing, they were all shaken out in front, and allowed to crawl back, two frames of brood and bees having been inserted. Again no go, when I hit upon this plan: There was a strong colony, not far off, in a two-story hive, both stories full of bees. Making sure their queen was below, I took the upper story and "swapped" it for my fertile-worker colony (one story), which left the bogus queen in the second story of a colony having a queen. Of course, most of the old bees of both hives went back to their respective homes. The stores were about equal. I then gave more Italian brood to my queenless colony, and queen-cells appeared in due time. There was no fighting in either hive.

C. P. COFFIN.

C. P. COFFIN.

Pontotoc, Miss., Oct. 21, 1889.

McNAY'S TABULATED REPORT

IN REGARD TO THAT LARGE YIELD.

Mr. Root:—In compliance with your request I herewith inclose a tabulated record of our season's extracting, from six apiaries. I trust the table will be understood by referring to my report on page 806, GLEANINGS, Oct. 15, without further explanation.

	Apitay A. 4 miles from basswood, 35 colonies.	Apitay B. 4 miles from basswood, 40 colonies.	Apitay C. 4 miles from basswood, 50 colonies.	Apitay D. 1½ miles from basswood, 35 colonies.	Apitay E. 5 miles from basswood, 50 colonies.	Apitay F. ½ mile from basswood, 70 colonies.	Apitay G. ½ mile from basswood, 70 colonies.
Date.	Date.	Date.	Date.	Date.	Date.	Date.	Date.
July 1	July 1	July 1	July 1	July 1	July 1	July 1	July 1
500	500	400	750	300	350	700	700
8	700	400	16	500	600	800	800
16	15	650	300	550	750	1100	1100
17	15	650	300	600	750	1200	1200
23	200	775	300	550	500	1300	1300
Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
3	3	750	550	450	700	900	900
17	10	550	8	600	6	1300	1300
21	20	550	11	600	12	1400	1400
27	29	600	27	500	26	1400	1500
800	600	600	700	500	1100	28	1500
Sept. 15	Sept. 21	Sept. 12	Sept. 10	Sept. 17	Sept. 4	Sept. 4	Sept. 4
300	300	400	400	400	450	800	800
Total.	6675	6100	5400	5100	3400	12500	Total 43,550.
Average per colony.	132	152	114	114	188	161	Average 132
Average from basswood.	25	38	34	47	55	50	30
Per cent increase in colonies.	90	30	30	50	80	50	30

BEE-HUNTING IN THE SIERRA NEVADA MOUNTAINS.

BY A SUCCESSFUL BEE-KEEPER.

Continued from last issue.

IN the spring of the year, bees prefer salt to honey; and using salt and water instead of honey, works first rate. Toward the latter part of the season, bees pay no attention to salt, but are crazy after honey. The breeding season is about ended, I suppose, and they have no more need of salt.

Some varieties of trees are more frequented by bees than others. This is owing, probably, to the large cavity these trees contain. In this location most bees construct their hives in sugar pines and firs. Old trees of the fir family are usually dead at the top, and sometimes broken off, caused by winter snows and winds. Trees thus broken off, usually send out a number of young shoots which grow up parallel with the main axis of the tree. Trees that are hollow within, usually give some outward signs of such defect, such as dead tops, the end of the branches dead, etc. When oak-trees are divested of their foliage in the fall of the year, is a good time for hunting bees where oak timber abounds. When saving bees, oak-trees are the best, as they can generally be felled pretty easily. When there is four or five feet of snow on the ground, that is the best time to cut the larger trees, as they do not fall so heavily.

HUNTING BEE-TREES WHEN SNOW IS ON THE GROUND.

I usually have as good success in hunting bees in the winter as in the summer time. When the ground is covered with snow, and the bees come out for a fly-spell, a great many become chilled, or snow-blind, I do not know which, and the snow around the tree is generally covered with dead bees. In running over the mountains in the winter time, on snowshoes, we frequently find bees on the snow. Marking the location, we return some warm day and find the tree. On Jan. 1, 1887, we found and cut a bee-tree. The bees were working on the black alders, in great numbers. I filled five L. frames with brood, and two with honey. That was an immense swarm of bees for that season of the year. I have taken bees out of trees almost every month in the year, and generally have pretty good success.

My method of taking bees from trees is as follows: After getting the tree opened, take all the combs containing brood, and cut each piece of brood so it will fit securely in the frame. With small wire nails, tack securely four small strips on the frames thus: Incline your hive to one side, and set in your frames as soon as filled. When you have all brood and empty comb in the frames, and your hive inclined to one side, so there is no danger of combs tumbling down, you will be ready to put the bees in the hive. Wait until they get clustered together, then lay a piece of cloth underneath them, and, with a small brush, drive all the bees off, causing them to drop on the piece of cloth. Shake the cloth in front of the entrance, and the bees will soon commence to call for their comrades. Put about half of the bees in this way, and the remainder will go in of their own accord. After they have been in there a few days you can remove them to their permanent location;

and if the weather is pleasant, and they have had a chance to fly out, you can take out the frames and remove the small strips, tacked to one side.

DISTANCE BEES GO FOR STORES.

Black bees rarely if ever go over one and a half miles for stores in this mountainous part of California. I suppose that, in a level country, they would go considerably further. In bee-hunting I never tracked black bees over a mile and a half from their habitation. All the wild bees here in the woods are black bees. Some of these bees are wonderful workers too. Bee-trees have been cut here at an elevation of 6000 ft., and some of these have contained upward of 300 lbs. of honey. Large quantities of honey are sometimes taken from wild bees here in these mountains, being the accumulation of several years of gathering. I remember one bee-tree in particular. In the month of July, having some leisure time at my disposal I started out bee-hunting. Having arrived at the place, I found a number of bees working on penny-royal. I was soon trapping them, and noting their line of flight. In a few moments I had a pretty fair line started up the mountain-side. I had to crawl on my hands and knees quite a distance. The mountain-side was covered with a dense growth of young hazels, deerbrush, flowering dogwood, young firs, and spruces. After wandering about considerably I came across a large dead fir-tree, a regular old patriarch, having withstood the storms of several centuries. After making a careful scrutiny, I observed the bees, entering where an old limb had broken off, at a height of about 120 feet from the ground. The tree was about seven feet in diameter. A few days afterward we cut it down; and in felling it it struck a large rock and was mashed all to pieces, throwing bees, honey, and brood in all directions. What few bees were not killed were terribly cross. We had quite a time gathering up comb and honey. The ground around where the tree had burst was covered with it. There must have been nearly 300 pounds of honey, if we could have saved it. Part of it was candied. We did not try to save the bees, too many being killed.

S. L. WATKINS.

Placerville, Cal.

To be continued.

HOW VANKIRK OBTAINED 20 CTS. FOR HIS HONEY.

BUILDING UP A REPUTATION.

FRIEND ROOT:—As I have not time to answer private letters I will ask space to answer some of the questions that my report in GLEANINGS, Sept. 1, has brought. I have been selling honey in our town for about fifteen years, and I have a set of customers that always depend on me for their honey. My price for about a dozen years has been 20 cts. per lb. for choice comb honey, and I have no trouble in getting my entire crop off at this price. It is sometimes higher and lower in our market, but all that buy my honey know that the price is the same, year after year. Choice comb honey has been worth 25 cts. per lb. in our town this present season, and I could have had that price for mine. But if I should raise on my customers when it is scarce I should have to come down when it is plentiful. It is not scarce here, by any means; but the consumption is great—

er than it has ever been since I have been in the business. I sold from the wagon this season from thirteen to nineteen dollars' worth once a week for quite a number of weeks, and canvassed only a very small portion of the town. I run a trip once each week with other produce, and the honey goes along as a "side issue."

Can you sell your honey here at these prices?

This is the main question that I have to answer. I answer, no. There has been so much honey shipped here, of poor quality, that the people will hardly buy at any price. There has been "California honey" sold here that never saw that State, and "Ohio honey" that only passed through the State. Some of our leading bee-men have shipped honey here with their names on the crates that was fair without, and the worst-tasting honey within that I ever sampled. But this is the exception. Dear friends, your honey is just as good as mine, and I could sell thousands of pounds of it for you if it were "Washington Co." honey. I have tried purchasing honey to supply my trade when I was short, but it did not work well, and it wasn't the honey's fault. I once got a small case of very good honey from friend Root to supply a lady customer, but she declared it didn't taste like mine. It is prejudice and conceit, and not so much the fault of your honey. Now, friends, I would gladly help you; but "charity begins at home." I have all the work that I care to have, and once for all I can not handle your honey. Our grocers are nearly all nice men; and if you would try them they might help you out. My experience has been, that it were better to sell at home. If you are a pretty good man, and have pretty good honey, I don't think you will have any trouble in getting it all off before honey comes again. I feel sure that I could do it, and I see no reason why you can not if you will just wake up and arouse your "latent vim." I hardly know how I acquired my reputation; but one thing I do remember: It took patience and hard work.

L. W. VANKIRK.

Washington, Pa., Nov. 21, 1889.

Friend V., we read in the good book that "a good name is rather to be chosen than great riches," and your statement above verifies it.

BEEES UNDER THE BED.

A CHINESE HOUSE-APIARY.

FRIEND ROOT:—I have something a little odd to tell; but in order to tell it well, I must first tell a few other things. One very common way which the people in this particular corner of the world have of building their one-story or story-and-a-half houses, is as follows: A foundation of cobble stones having been laid where the side walls are to stand, and perhaps also where the back of the house is to be, two broad planks are fastened on their edges between upright poles set in the ground, on each side of the foundation, and damp earth is put between them and pounded down hard. The planks are then raised one course higher, fixed firmly in place, and more earth put in and tamped down, and so on till a height of ten feet or so is attained. Then a wood frame is put up inside of these walls. If the house is designed for a shop or store, the whole front consists of movable boards sliding in grooved pieces at top and bot-

tom. This is the general plan on which many a Chinese inn is built. To economize space, the tavern-keeper generally has a *box-bed* for his own use. This consists of two boxes, each one about 3 by 3½ feet in length and breadth and 2½ feet or more high. These two boxes, set side by side, make as good a bedstead as most Chinamen have. I was resting in front of a tavern one day last February, when I observed a string of bees pouring in and out through a crack between the corner post and the earth wall on my right. Through the obligingness of the landlady I was enabled to investigate the matter. There in that corner of the building stood one of these box beds. Rats had gnawed a hole in the lower corner of the box at the bottom, close by the crack, and through this crack and rat-hole the bees had come in and taken possession of the box. The landlady told me that they came of themselves in the previous May, and that she cut out their stores last fall. They had nearly half a bushel of new white comb partly filled with clear honey. Rape, which is much cultivated here as a winter-spring crop for making rape-seed oil, was just coming into bloom, and the bees were doubtless at work on this. In fact, ten days of mild weather had started a number of wild plants to blooming, and the bees were booming. Chinese bees always seem very docile. Rape honey is said not to be equal in flavor to tea honey. The tea-plant blooms in December.

J. E. WALKER.

Shaowu, China, March 20, 1889.

MANUM'S HOME APIARY.

HOW IT LOOKS IN WINTER.

MR. ROOT:—Agreeably to promise I herewith hand you a view of my home apiary in winter. This picture was taken the day following one of our Vermont snowstorms, and, as will be seen, Manum walked out into the snow nearly up to his waist to have his picture taken. There is quite a contrast, as you will observe, between his complexion and the beautiful snow, as appears around about the hives in the front row on the left. The playful winds toyed with the descending flakes in such a manner as to cause them to nestle down one over the other, between the rows, leaving the hives somewhat free from snow, while that portion of the apiary on the right is almost completely covered.

I am often asked if I shovel the snow away from the hives whenever I find them so covered with snow. My answer is, "Not always;" though when there comes a warm spell, so I think the bees can fly, I do so, that they may have a cleansing flight, which I believe to be very essential for the welfare of the bees, especially if their stores consist principally of honey, but not so essential if composed chiefly of sugar syrup.

The rows of hives at the left, along by the fence, have been some winters completely covered with hard drifted snow—so hard, in fact, that I have been able to walk over the hives, and a stranger would hardly have believed there were live bees under so much snow, and yet the bees always came through in good condition. But remember, whenever there were indications of a thaw I was on hand to give the bees their liberty. I well remember the first winter that the snow drifted in the manner above mentioned. I took a shovel and un-

dertook to dig them out; and after working a while I struck the corner of a hive about three feet below the surface of the snow. I continued to work away until I had dug a sort of well in the snow in front of the hive. As it was pretty hard work, and as I thought my time was worth more in my harness-shop than it would cost to hire it done, and *thinking it must be done* or the bees would smother, I secured a man to do the shoveling, and returned to the shop. In about an hour the man came in to ask what he should do with the snow shoveled out. I returned with him, to find that only two hives had come to light. I also found that, owing to the snow being packed so hard, the man had broken my shovel, and borrowed another of a neighbor. I finally scratched my head, and commenced to think and reason, and came to the conclusion that, as there was only about one foot of the top of this snow that was so hard, while the remainder was comparatively light, I decided that there would be air enough circulating through it to answer the requirements

being buried under snow too long at a time; but I do not object to their being well banked, except in front; yet I do not think that much snow around our double-wall (or chaff) hives is very much benefit after all. I once thought it was, and I have banked it around them; but I do not do so now, as I find that the bees in the hives wholly exposed—which are in the same apiary with those drifted under—winter as well as any; therefore I have come to the conclusion that deep snows are really no great benefit, nor, if watched, any great damage to the bees. If I could have just the proper amount of snow around the hives all winter I would not object, providing it be removed as soon as there comes a thaw; but to have the hives completely covered for a long time is, I think, detrimental to the bees, as it causes too early breeding, if the weather is mild.

After my bees are all packed and fixed for winter—which I usually do the last week in October or first of November—I leave them entirely undis-



A. E. MANUM'S HOME APIARY IN WINTER.

of the bees. I therefore discharged the man, and left the bees to their fate.

In about three weeks from this time we had a thaw, so that bees not so protected by snow had a good fly. I left these for experiment. In March the south winds so melted the snow that I was able to clear the entrance of all the hives, when the bees had a good fly, and I found, upon examination, that every colony was alive and in good condition. But, mind you, that, if my entrances had been at the side of the hives, as in most hives in use, and not underneath, as they are in my hives, I believe the result would not have been so satisfactory, as it is impossible for my entrances to become clogged by ice, as is often the case with side entrances. Since then I do not worry when my home apiary is buried in snow, because I am near by to shovel out when there comes a warm spell; but not so with my out-apiaries, as I have lost bees in out-apiaries by their

turbed until there comes warm weather enough for the bees to fly. Then I shovel away the snow from the entrance, and pull the slides to see that the entrances are all clear, and at once return them, as the notch in the slides gives the bees all the entrance they need in winter and early spring, it being 2 inches long by $\frac{3}{4}$ wide.

Since I have used the Bristol hive there have been two winters when the bees were unable to fly from November till April; hence not a track was made in the snow in any of my apiaries.

I will add, that my bees never wintered better than they did the two past winters; however, I always feel better when they can have at least one good cleansing flight in January.

Were I using hives with the entrance unprotected, as most chaff hives are made, I would either lean a short board against the hive over the entrance to protect the entrance from being clogged

by snow and ice, or I would take pains to keep the snow away.

Bristol, Vt.

A. E. MANUM.

Friend M., I was greatly pleased to get your excellent picture of an apiary in winter, because it may give perhaps hundreds of our readers, if not thousands, a glimpse of something they have never seen. I am very glad indeed to get the facts you give us in regard to bee-hives covered with snow. We notice in the picture there are ventilating-holes in the upper part of your hives. Now, I should think this would afford air enough. Of course, after a long confinement it may be desirable to cut away the snow, so as to give the bees a fly. My impression is, however, that with the greater part of our readers more harm than good will result in tinkering with the hives in winter. I am afraid it would turn out as it did with the man you hired. In our locality we never had snow enough to do any harm, in my opinion. We have such frequent thaws that there is almost always a space above the entrance, between the hives and the snow, to let in air, and to let the bees get out. I have often seen them crawl up the side of the hive, take a fly, and return in the same way.

THE ALFALFA FIELDS OF ARIZONA, ETC.

BY J. H. ROOT.

BRO. A. I.:—In reading the report from the Nevada man, Mr. Ball, I was somewhat surprised at some of his answers compared to alfalfa grown in this valley. I always supposed it required warm weather to raise good alfalfa, as here in the warm months it grows very fast with proper care. Some cut it five times, and some six and even seven times in one season; but it can be cut five times, and then be pastured from the last cutting until spring. It remains green here all winter. Some are cutting now. I see a great deal of it in bloom yet. The beauty of this valley for bees is, there is no dew at night, and the bees can go to work as soon as it is light, and can work nearly every day in the year. They say they can gather their living here during the whole year, summer and winter. The bloom from an alfalfa field is sweeter than any flower-garden I ever saw. I suppose that is owing to there being so much honey in the blossom.

The honey here is different from that of California or the East. It is sweeter, and has more of a sugar taste in it, and is whiter. I never cared much for honey East; but here I can eat it all the time.

In this valley the water is run in between borders about 100 feet apart, the distance depending upon the lay of the land. If level they are further apart than when rolling. They do not furrow here nearly as often as they do in Nevada.

The only one great objection to the bee-business here is transportation on the supplies in, and the honey out. There is no trouble in making honey, and there is a railroad on foot now that will open up the lumber district from the mountains and give us a market out for all our hay, grain, poultry, and dried fruits.

I get fine alfalfa hay for my cow at \$3.50 per ton, when in the lumber region, less than 200 miles from

here, it brings \$30 per ton, and every thing else in proportion. Times are awful dull here now, because the markets are hard to get to—that is, mining and lumber camps; but the new railroad runs to both. Now is the time to strike this valley, as lands are cheap. I like it here much better than Southern California, where lands were held at from \$150 to \$400 per acre. Good land can be got here by buying a "right," from \$450 to \$1000 per 160 acres, and then water can be had for so much per share, or part of a share, depending upon the canal. The way the land is situated, some canals sell ten-acre rights for \$100. That includes so much water. They calculate 100 inches here to water 160 acres. Well, the more the country is irrigated here, the more water there is from year to year. The water is coming nearer the surface. The main canals are taken out of Salt River, up near the mountains, and is then run all around the valley in small ditches. Without water here there would be no living thing, as the rains are very few. We have had only two since I have been here. They were good ones, though.

I have not had a stove in the store yet, and have been comfortable. We get good mesquite wood at \$2.50 per load.

I can not tell you as much about the bees as you would find out from some of the bee-men. Alfalfa for stock is the same as bread to us. Hogs and poultry will keep fat on it, and stock will eat every particle of it as clean as though it were oats.

Tempe, Arizona, Nov. 22, 1889.

JESSE.

Many thanks, dear brother, for the important facts in regard to the matter you furnish us; and we are now looking forward to the time when I can make my second trip to California, taking in Arizona. I say "we," for I mean there will be two of us—Mrs. Root and myself.

CHAS. F. MUTH.

AN AUTOBIOGRAPHY OF ONE OF THE PIONEERS IN THE BEE-BUSINESS.

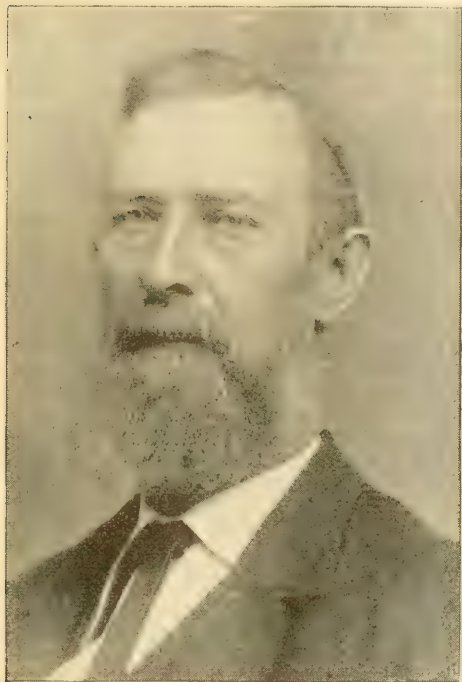
FRIEND ROOT:—Since you insist on a biographical sketch of my humble self, I shall endeavor to give you a history of my existence in America in as few words as possible.

I was born and raised in Hesse-Cassel, Germany. I arrived in Cincinnati in the spring of 1854, about 20 years old. Here I found a situation as salesman in one of the best groceries of the city, a business to which I had been reared. A desire to see the country, made me give up a very good situation after a stay of two years. I saw the orange-groves, sugar and cotton plantations of the South; and after my ambition was satisfied with a few years' experience in the wild West, I returned to Cincinnati; got married; filled a position as salesman in another grocery for nearly three years, till I started my own business, in 1861, at 976 and 978 Central Avenue, in our city. Two years afterward I bought the property, built it up, and am living there now.

My career as bee-keeper commenced with the establishment of my business, in 1861, although bees have been my hobby ever since I remember.

The first five colonies of bees in patent (?) box hives were placed on my roof in 1861. These patent

hives did not fill the bill with me, for I had read father Langstroth on the Hive and Honey-bee. I commenced to read the *American Bee Journal*. I read every book in the English and German languages within my reach, and was an interested reader of every periodical on the bee-question, as they, one after another, made their appearance. The *Bienen-Zeitung*, Salzburg, Germany, with its able editor, Schmidt, was a great source of information, as well as the *American Bee Journal* under Wagner. I have read, and still have, each issue, beginning with the very first of each. It is due to my friend Hill, Mt. Healthy O., that I adopted the Langstroth hive. Hill was my first tutor in scientific apiculture.



CHAS. F. MUTH.

You may remember yet, Brother Root, that I was one of the first warm advocates of "extracted honey." My labels read to-day as they did in 1869—"Pure machine-extracted honey." You remember, perhaps, also, the objections of old to the words "machine extracted." We have had for years, perhaps, as large a home trade for extracted honey as any house in the country. My first tin honey-extractor was made in 1869 by H. W. Stephenson, of our city, after the pattern of a wooden extractor made for me the previous season by Propheator Bros., coopers, of our city. During the season of 1870 I sold my first four tin honey-extractors to bee-keepers in this neighborhood.

My apiary has been, since 1861, on the roof of my house, and the average number of colonies per season is about 45. The largest average yield per colony in a season was 198 lbs. of extracted honey, all of which was gathered during 26 days, in the month of June. My largest crop in a season was

between 6000 and 7000 lbs. So you see I was one of the first to make good use of the honey-extractor.

This neighborhood has been visited by foul brood for the last eight or ten years, and our ardor as bee-keepers considerably dampened thereby. The study of the cure of foul brood has been an expensive experience to me. I have cured hundreds of colonies, but I can not prevent reinfection, and I have come to the conclusion that the cheapest and best remedy, after all, is the brimstone-pit, and wiping out of existence the stand, hive, combs, and all, on first discovery.

CHAS. F. MUTH.

Cincinnati, O., Oct. 22, 1889.

FLORIDA.

APPURTENANCES AND METHODS NOT NECESSARILY SUITED TO THE SOUTH.

MR. ROOT:--GLEANINGS reaches us regularly, is looked over closely, and then carefully read and thought over. I have been a reader of its teachings for about 14 years.

I have always found something in each number, which, practically applied, has proved to be worth the yearly subscription price of one dollar, or, for the 12 years' reading, \$288. This may appear to many a high estimate of its value, but I am sure I should much regret to be set back in the A B C of 14 years ago for the sum of \$288, and I think I speak the thoughts of many others of its patrons and readers.

There are a great many of the thoughts, theories, and appliances, used, recommended, and put before the bee-keepers, that are entirely useless to us in this climate. The problem of wintering is a great study. The care and cost, and the loss, are often great, even after all the precautions taken to make it a success; also spring dwindling, and a sufficient amount of stores to feed them until they can secure their living—all this is superfluous reading to us here.

LARGE VERSUS SMALL HIVES.

There is much speculation about large hives vs. small hives. Much of this appears very useless argument. The farmers of the country could, with equal claims over the officers of agriculture, advocate large horses in Ohio when small ones in the cotton-fields of the South would be far more economical, and so with hives. Location, source of honey, season, climate, all these may and do certainly and practically, and with a view to economy of the bee-labor, and that of the man, make a difference in the working size of a hive, as necessary as the different places where they are in use; hence the arguments appear useless, and the talk about a "standard" hive would be like a standard plow suitable for all climes and soils. But when real, practical, scientific, and natural subjects are made a basis of argument, then the interest is aroused all through the fraternity, and good will be the result. This, then, brings out thought, and reason from cause to effect. Such reading is very desirable; gives useful instruction, when personal arguments about "the hive I use" are of very little value to the practical honey-producer who thoroughly knows the flora of his location, and adapts the hive he uses to the profitable production of honey. The best argument is the honey produced. The hive is a very small part of the necessary elements of suc-

cess. The man or woman, and the flora, are the main stay of a successful honey crop.

Our crop of honey this year has not been large, but we are well pleased that it was as good as it is. The quality is of the very best. We commenced the season with 20 colonies, only in fair condition; made no increase, and have taken 2000 lbs., all extracted, quality excellent. It was sold by the gallon at \$1.25, all at home, except 20 gallons to A. I. Root, and 40 to Dr. L. H. Harris, Pittsburg, Pa.

Our bees are located at St. Francis, on the St. John's River, 10 miles from Deland. The honey gathered there can not be excelled in the State, and I very much doubt whether it could be in any other State.

I see that Mr. C. E. Jones says he is going to move 200 colonies to Florida for the orange-blossom honey. I hope he will come. The orange honey is very fine, and the bees are a great help to the setting-on of the fruit, carrying the pollen into the bloom as soon as it opens, thereby causing a more complete fertilization than would be without their aid, when the bloom first opens, when all its nature is complete. I can not well dismiss this subject of the honey-bee being a great help to the orange-groves. They carry the pollen into thousands of flowers that are pendent, that would perhaps never be reached by any other source, or, if so, only by the floating particles. More than this, my attention has been called to some of the groves in this vicinity; and where there were bees kept, this season the orange crop is very fair, fruit evenly distributed, while other groves, not having any bees near them, are not so full of fruit, and not so evenly distributed; and I think the day is not far distant when the large grove-owners will solicit bee-keepers to bring their bees within reach of their groves, thereby benefiting both parties.

I see, friend Root, you have been up among the northern bee-keepers. Could you not make a visit to Florida this winter, and call and see us? I think you would enjoy it, and also in the trip call on friend Poppleton over in Cuba. Do come—our latch-string hangs outside the door.

JOHN CRAYCRAFT.

Altosna, Fla., Aug. 24, 1899.

A REFERENCE TO QUESTION 111.

GENTLE BEES, BETTER WORKERS, AND SMALLER CONSUMERS.

WHICH will make the better working colonies during the working season—that is, secure the most honey—those that require 20 to 25 pounds to carry them through, or those that will get along on from 5 to 10 pounds while in winter quarters?

The various answers to this question, and your remarks, set me to looking back for several years, and thinking up concerning various strains that I have had for the past 13 years. That there is so much difference in different strains concerning the amount of stores consumed between November 1 and April 1, I can trace back to 1876, on a queen that came from C. C. Vaughn, whose stock was always strong, as were also those of her daughters and granddaughters. From the time of the end of the fall harvest to the time of pollen and honey in the spring, it was a rare case to see the workers fly out much; and for 7 or 8 years that I kept this

strain as near pure as possible, it was very noticeable what a small amount of stores was consumed, and it was also noticeable to the same extent where this blood was intermingled with some other strains.

Between 1876 and 1882 I obtained new queens from 15 different strains; and among them were several that were noticeable for their extreme activity, as were those referred to from C. C. Vaughn, and two other places, for their extreme quietness. Those that were so active consumed *pro rata* as much more stores as the quiet ones did in minima. These quiet strains always came out strong in the spring, were always in readiness for the harvest, were gentle to handle, were good to go to work in the boxes, and did a good business at boxing; and just the reverse were the results from those that were active, and consumed a large amount of stores from November 1 till April 1. These various differences were noticed by other parties in this locality for 12 or 15 miles in all directions, and by those wintering in the cellar, in clamps, or on the summer stands; and as those that were quiet built up strong and fast in the spring, just as noticeable was the spring dwindling of those that had been active; and the active ones were, in the same proportion, irritable, and prone to sting. These qualities were so apparent, that several of the bee-keepers I know of made it a point to keep weeding out the active propensities as fast as possible. The active ones were more inclined to swarm, and were quite often very much given to not freely taking a new queen, and to very often ball their queens whenever the stocks were examined. The workers of these active stocks were generally among the brightest-colored of the apiary, and the quietest were among the dull and darker colored ones, and were quite often called, by those that were not experienced, the "hybrids."

These quiet ones, when started to breeding in the spring, usually consumed stores enough to make up for their lack when in winter quarters, and not uncommonly surpassed the amount used by the active strains; so you see that the experiences of the past 13 years here in Connecticut are in accord with Mr. Doolittle's, and why should they not be? because bees at several of the apiaries contained blood of his strain, and from the Dadants' too, and from stock from imported queens from A. I. Root, and from queens from the Oatmans, Alley, and Nellis. That there is a vast difference in regard to the uneasiness, activity, and amount of stores consumed, seems to be qualities possessed by various strains or families of bees; and that these propensities are perpetuable characteristics, are things that I am not the only one who is convinced that we must guard against. There are apiarists within a few miles of me who think as much of keeping a record and pedigree of their bees as any Jersey, Durham, Devon, or Holstein breeder does of his cows; and by these memoranda for from 10 to 20 years they have arrived at the conclusion that blood will tell in the bees as much as anywhere else in the animate kingdom; and yet one will preach out, "It's pollen;" another will preach, "It's poor honey;" another, that it's the weather. Why, Mr. Root, I know where there is a bee-keeper—yes, several of them—who will tell you, and prove it by practice, that it is an absolute necessity for the bees to have lots of pollen that they may winter well, and they have followed the practice ever since 1877, and they

don't lose their bees either. I practiced it in one apiary myself ever since 1877, and it is the apiary where I always have the strongest colonies, the first drones, and raise the earliest queens, and lose the fewest colonies in winter or spring, and yet they have all the pollen that I can give them. I think that question 111 will set many to looking for some of their winter losses among these very active and naturally uneasy colonies, and find not a few of their most unprofitable ones among the same class. I have found it so, and so have some other beekeepers. Just look around you; keep watch, and see if I have not told you a grain of truth this time.

One thing more: While I was looking over the bees in the Grove Street Apiary in New Milford last week, one of those pleasant days (the thermometer told 60 in the shade), it was very plain to be seen that those stocks having used the least amount of stores were in the best condition, were the strongest, had the fewest dead bees on the bottom-board, and, besides that, could be traced by the register for the past four seasons to stock possessing those qualities, and just the same could those of the active and weak stocks be traced out in their qualities.

H. L. JEFFREY.

New Milford, Ct., Mar. 18, 1889.

AN A B C SCHOLAR'S EXPERIENCE.

HIS UPS AND DOWNS.

EDITOR GLEANINGS:—Do your students of the grammar class, bee-college graduates, "and all that," ever look back to the time when you did not know a drone from an eye-bunger bumble-bee, or a worker from a yellow-jacket? I am pretty sure you do, judging from the kindly sympathy and infinite patience with which you answer our questions and rehearse the (to you) monotonous beginnings of bee-lore. I suppose I am beginning much as some of you did—knowing almost nothing on the subject. I am not much given to enthusiasms, so when this fever struck me the attack was something serious. There was no incipient stage, such as is common to fevers, and my system seemed unable to resist the contagion in the least. I caught the disease from a stray copy of a book which I found in the Y. M. C. A. library of our town; viz., "Blessed Bees," by John Allen. Being favorably disposed toward Hahnemann's "*Stimilia similibus curantur*," the medicine I took was Quinby's Mysteries of Bee-keeping, Root's A B C, and a subscription for GLEANINGS, full doses of each, daily. As pulse and temperature seemed to increase under this treatment I prescribed for myself a remedy which is said to often effect a cure when all else fails; viz., a swarm of bees. I had a deal of faith in this last medicine. I thought, if it both does and does not cure rheumatism, there is at least a good chance that a few stings will cure the bee-fever.

But like failed to cure like in my case; on the contrary, the prescription worked up an enthusiasm which as yet shows no signs of abatement. There was unalloyed pleasure in the hours that I watched them, investigated, experimented, blundered, and rejoiced to see how docile and patient they were with me; how quietly they repaired my mistakes, and recovered from the effects of my mismanagement.

My first task was to transfer them from the bar-

rel in which they were brought to me, to an L. hive. I had every thing at hand that I expected to use. Even my better half, in gloves and mosquito-net veil, was there as assistant. It was seven o'clock of a bright August morning when I inverted the barrel and began operations. I may as well confess I was "scared of them," as our colored girl put it. It was no with little trepidation that I sawed the hoops away and put a carving-knife into the combs and my bare fingers among the bees. But they respected my sentiments, and I got but two stings that day. What a mess I made of it! By the time I was half done, the barrel fell to pieces, and there were about two robbers to every home bee. I could not keep them off a comb long enough to lay it down on the table, and was obliged to fit and tie, with every thing black with bees. In an hour and a half I had six frames of pretty fair comb hung in the new hive, and the most of the bees were in too, or flying about the entrance. I did not see any thing of the queen, and don't know when or how she got in. Then I left them to their own devices, and did not see them till next morning, when I opened the hive, and, to my great surprise, found they had not a drop of honey. I had hung the frames in half full of honey, but the robbers had kept on at their work after I had finished mine, and had cleaned them out.

As there is very little honey in our summer flowers, I knew I must feed them or they would starve, or, at least, raise but little brood. So I fixed up a pepper-box feeder, and for two or three weeks gave them a nightly feed of sugar syrup. A few days after transferring, while removing some clasps and sticks, I found the queen. Didn't we all rejoice, though, over that first sight of a queen-bee? Wife and children gathered about me as I held the frame and watched her run over the comb, and tried in vain to see the "attendant bees," the "retinue," pictured in our books. Such a beauty she was—long-bodied and yellow! We, at least, did her homage, if the bees did not. By smoking the bees off the center of some of the combs we found she had been laying. Then we counted the days until the brood was sealed, and again until the inmates of the cells cut their way out, fuzzy-headed and hungry. It was a revelation to grown folks and children; and we took daily observations of their progress, and read and talked of them, almost to the exclusion of other topics.

If our incessant smoking and watching hindered them in their work they did not show it; and soon there were so many bees and so much brood that I concluded to divide them, and see if they would raise some new queens. I had given them two or three frames of wired foundation which they had drawn out, and nearly filled with brood; so I thought I had enough for two pretty fair nuclei. I took the queen and all but three frames of brood to hive No. 2, when they went to work, very few leaving for the old stand. Then we watched No. 1 closer than ever. In two days they had four cells started; and we saw with an interest that amounted to excitement, the baby-queen lying in its milk-white bed, which we knew was the royal jelly we had read about. One was so big when only three days old that we were afraid it would not make a good queen; so I tore it out. In due time the rest were capped, and we waited, impatiently enough, for the culmination of our hopes. One morning there was an empty cell, and a nice young queen travel-

ing on a tour of inspection over her kingdom. The other cells were yet intact, and I cut them out to save her majesty a quarrel.

All had been plain sailing so far, and we were proud of our success—perhaps a little too much elated. Perhaps we needed (at least we got) a lesson which we will not soon forget. The queen-raising was done in October, while the bees were getting a good deal of honey from goldenrod. About a week after our queen was hatched, the harvest ended. I was feeding my two swarms a little daily, as I wanted to have them strong when orange-blossoms came, in February.

One evening I came home and found things in a turmoil. Bees were flying about wildly, crawling over the hives, and fighting everywhere. As it was then after sunset I did nothing and soon had the pleasure of seeing the robbers withdraw their forces for the day, and things quiet down. That was the beginning of the end. I shut up my hives for days at a time; but, shut or open, the thieves were there at daylight, and stayed until dark. If I left a hive open so just one bee could get in or out, the result was an all-day fight and a pint of dead bees at evening. After a week of this sort of thing I opened No. 2 one morning, and found the bees so starved that they could scarcely crawl. They were tearing out the sealed brood. I gave them a good feed, and shut them up "for three years or during the war."

In No. 1 my beautiful young queen was dead, and there was no honey and no brood. There was a sorrowful party around the evening lamp that night. Two-thirds of our bees were dead, one hive queenless, and a poor outlook for orange-blossom honey. The conclave decided to unite what were left, shut them up, and feed by lantern light until spring if necessary.

I was afraid they would fight, and kill the queen; but it seemed the only thing to do. So I hung the frames on opposite sides of a hive, inverted a Mason quart jar of syrup in a saucer, between them, and left them to their fate. Next morning the jar was empty, and the queen all right. That night I put the frames together, and the feed in a wooden butter-dish on top of them. Twenty-four hours later the queen had changed sides and all was quiet. In a few days the thermometer dropped to fifty, and the robbers suspended operations. We have also suspended our experiments and investigations, and are going to feed steadily, and give the veteran survivors of the autumn campaign the rest which they so richly deserve.

As to the outcome of this, my first term in the school of bee culture, I think it has paid largely in experience, and over and over again in enjoyment. The A B C has been our text-book, and we look on it as the X Y Z as well, in all that pertains to the honey-bee. GLEANINGS is devoured as soon as received, and re-read to wife and children when the evening shadows bring us together. We are glad to have found our way into the circle of genial, intelligent patrons of this pure and elevating industry, and glad to find that so many of you are confidently looking forward to even a better inheritance than our all-bountiful Father has given us in this beautiful world.

E. J. BAIRD.

Orlando, Fla., Nov. 20, 1889.

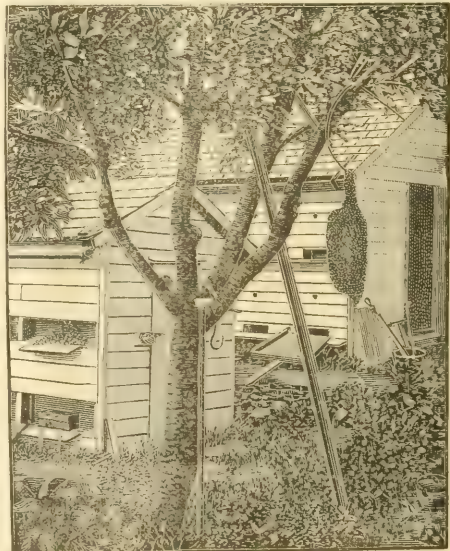
Friend B., the story of your commencement is so nearly like my own in the earlier volumes of the *American Bee-Journal*, be-

fore GLEANINGS had an existence, that it would make you smile to read it over. I had exactly the same troubles with robbing, and I once thought I would almost go to the expense of a trip to either Langstroth or Quinby, to have him explain to me just how I could tell robbers from other bees, and know what to do when they acted as they did with you. I was assured by bee-men of experience (through print, of course, for I had never seen a live bee-man till I commenced), that in a little time it would be all plain and easy.—Your plan of shutting your bees up for "three years or during the war" may do when you can not do any better; but I should regard it as a wasteful way, at least when honey or pollen is to be obtained. Almost any colony will defend itself from robbers if it has plenty of bees, a fertile queen, and an entrance not too large for the quantity of bees. I rather think they defend themselves a little better where they have brood in all stages. When they are suddenly attacked they sometimes have to have a little assistance until things are straightened up, and a decision has been made as to who is running the institution—the robbers or the honest owners. You will get out all right—never fear. We shall be quite glad to hear from you again. Give our respects to Mrs. B. and the little "B.'s," who are interested in the success of the new enterprise.

BEES IN HOUSE-APIARIES.

J. A. GOLDEN'S METHOD.

FRIEND ROOT:—I inclose you a picture of my plan of keeping bees, also how I hive them. If you look at the further house, and at the lower right-hand bee-entrance, you will observe what we call a feed-board. On each side there is a wire hook that fastens into two small staples placed in the alighting-board at the proper



GOLDEN'S HOUSE-APIARIES, AND PLAN OF HIVING SWARMS.

places, the standard being hinged to the under side of the feed-board, with a nail driven into the lower end, filed sharp, and, when swung against the house, will hold the board very rigid. It is one of the handiest tools one can have about a house-apary for living bees. I use the wire basket that shuts automatically when the bees drop into the basket, should the bees cluster on a tree; but I usually catch the queen when she comes out, and place her in a trap, and hang the trap on a pole or in a tree, as you will observe in the picture. The bees will soon cluster, and may be shook on the feed-board, the queen liberated, and hived with the least trouble. The small dark spots above the entrances are two-inch auger-holes with funnel-shaped wire-cloth bee-escapes. A three-inch space between the hives and weather-board is packed solid with sawdust, answering the same purpose as the chaff hive. During the winter I fill the porticos with straw, having an air-chamber on the inside of the house to the hive, covered with wire cloth, that affords abundance of air for the bees. I also have a three-inch tiling, 60 feet in length, passing about six feet under the ground, and conducted thence up through the floor of the house, having a small ventilator at the roof; and on a cold day one would be surprised to see how mild the air seems to be, passing from the ground. My floors are carpeted, and no jarring is noticeable when one desires to examine the bees.

J. A. GOLDEN.

Reinersville, O.

ALSIKE TURNING TO WHITE DUTCH CLOVER.

ALSO RED CLOVER TURNING TO ALSIKE; AN EXPLANATION OF THESE APPARENT PHENOMENA.

MR. C. L. GOUGH states in GLEANINGS of June 1, that he believes alsike has turned to white Dutch clover with him. Now, after an acquaintance with both of these varieties for years, I think he must be mistaken. That the changes, as he states them, undoubtedly do happen in hundreds of fields all over the United States, I believe. Perhaps it would be better to say that one kind of seed is sown, and, by some reason, destroyed, and another growing plant, perhaps of similar habit, takes its place. Some of the reasons that may lead us to think alsike may change to white Dutch, are, that in many seasons, on a dry soil (especially if sown thick), alsike will grow short, and about the height of white Dutch, and it will also have a great many nearly white blossoms. With us, about the middle of June, there were many stalks of white Dutch one foot in height; but the difference between this and alsike could be readily seen by comparing their different way of flowering. The flower of the white Dutch is borne at the top of a leafless, branchless stem, springing from near the root of the plant. With alsike there is generally a flower formed for every joint on the stalk of the plant. This difference in the manner of flowering is sufficient to show that one variety can not change to the other in the course of a season.

To account for the presence of the white Dutch in any soil here is not difficult, as it will spring up under favorable conditions everywhere. The seeds are probably scattered by the winds, animals, etc. On a piece of ground lately cleared of timber, the

white clover has made a fine growth, and yet probably no grass seed has ever been sown there by the hand of man. May we not refer this to the provision made by an all-wise Providence to always keep the ground covered with growing plants?

One of my neighbors has perhaps some reason for thinking that red clover turns to alsike, although he knows better. He seeded a field of six acres to red clover and timothy, and was surprised the next year with a fine growth of alsike. It had been about ten years since any alsike had been sown on this field; but the conditions were favorable for its growth, and all the seeds in the soil germinated, while the red clover had been winter-killed. Perhaps the same happened to Mr. G.'s alsike, and the white Dutch came in its place.

Watkins, N. Y.

CHAS. CHAPMAN.

Friend C., there is certainly something wonderful about the way alsike and other clovers come up, years after the ground was first seeded, and I think that this fact alone explains not only one kind of clover turning to another, but the complaint that has been made that seed furnished does not always produce the kind of clover that it ought to.

SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

That art on which a thousand millions of men are dependent for their sustenance, and two hundred millions of men expend their daily toil, must be the most important of all. The parent and precursor of all other arts. In every country, then, and at every period, the investigation of the principles on which the rational practice of this art is founded ought to have commanded the principal attention of the greatest minds.

JAMES F. W. JOHNSTON.

EXTRA-EARLY CABBAGES.

Mr. Root:—Have you grown any or all of the following varieties of early cabbage? Early Jersey Wakefield, Early Etampes, and Early Express (both Early Etampes and Early Express have been renamed by several seedsmen, and called their "Earliest"). We should like to hear what you think of any or all the varieties named, under whatever name you may have grown them. We want to know what estimate of value you put upon them as early market varieties; which is the earliest, and which sells the best in market.

W. J. GREEN, Horticulturist,

Ohio Agricult'l Experiment Station.

Columbus, O., Nov. 26, 1889.

We have tested all the kinds you name, besides every thing else that has come out claiming to be earlier than the Jersey Wakefield. Some of them have, perhaps, been a trifle earlier, providing we call loose heads cabbage; but so far as sound heads are concerned, we have not found any thing that would compare at all with the best strains of the Jersey Wakefield. I ventured, two years ago, to plant just one row of Early Express, but the experiment cost me several dollars. The Wakefield was so near the same time in maturing, that no one would buy the Express at all, on account of its inferior quality. Landreth's Extra Early gave us a few fair heads; but there was nothing uniform about it. The product seemed to be all sorts and sizes, both early and late.

WANTED—A COAL-OIL STOVE FOR HEATING GREENHOUSES.

Mr. Root:—I want a small coal-oil stove for heating a small greenhouse; and as you have had experience in that line of business, and know the make that would suit best, I come to you. My house is quite small, and I want a stove to burn coal-oil in, and one that will not injure the flowers.

Kelleyville, Tex., Oct. 17, 1889.

J. BOWN.

Friend B., I can not find by any of the floral or gardening magazines that any such thing is in the market. I have seen accounts, however, of several home-made ones. It has been found necessary, I believe, to have some sort of a chimney, or small stovepipe, to carry off the gases and smell. As steam-engines are now run by coal-oil or gasoline, without question they could many times be profitably employed for warming greenhouses. Such a stove ought to be run 24 to 48 hours without any special attention. There are coal-oil stoves made for heating dwellings, to be found at most stove-dealers' establishments; but they will probably need some modification to fit them for a greenhouse, unless, indeed, your greenhouse is so small that no pipes for either steam or hot water are needed. An ordinary coal-oil stove answers nicely to keep the temperature of a cellar just above the freezing-point; and I do not see why they would not answer a similar purpose to keep flowers from damage, especially in the comparatively mild climate of Texas.

THE "PLANET" TOOLS, FOR LADIES.

Dear Sir:—Please be kind enough to tell me if the "Planet Jr." double-wheel hoe and cultivator (Figs. 10, 11, 12, 13, 14, and 15), illustrated in the catalogue you sent me, can be used by a lady; or if it is too heavy. Our soil is sandy and mellow; and as help is scarce, I should like to find something to help me work faster. MISS S. E. RAUCHENSTEIN.

Whistler, Ala., Nov. 18, 1889.

My good friend, unless you are very stout and strong, I fear that you will find any of the machines mentioned very fatiguing. The amount of enthusiasm you have, will, however, make a vast difference. You can take off some of the teeth or cutters, so as to make it run easier, but then it would not work so fast. If you possess the strength of an average woman, I think you will do much more work, and do it better, with the machines mentioned. I believe, however, I would first try the Firefly, Nos. 24 and 25. You can work these without any trouble, and they are easier than a common hoe, because the wheel enables you to go at exactly a certain depth, and not deeper. Of course, you must have nice mellow soil, or none of these tools will be available. If you could borrow one of some friend near you, before investing, it would be quite an advantage. A good deal depends on getting accustomed to these tools, and knowing just how to use them. Our average hired help do not get along very well with them. The trouble is, they do not understand it, and, worse still, they have no enthusiasm in making it bring out its best capabilities. Now, to me there is nothing I enjoy in the world more than taking these tools into the garden, after a

rain, when the soil is just dry enough, and make them put the plants in nice order, and do it rapidly.

HOW TO TELL WHEN A WATERMELON IS RIPE.

In my young days I was laughed at so much for pulling green melons (for I could not decide when ripe by thumping) that I put my wits to work to decide in some other way; and after experimenting for years I at last learned to tell very easily. My plan is this: I draw my thumb-nail over the melon, scraping off the thin green outer skin. If the edges of the skin on each side of the scar are left ragged or granulated, and the rind under the scar is smooth, firm, and white, and has something of a glossy appearance, the melon is ripe. But if the edges of the scar are smooth and even, and the thumb-nail has dug into the rind in places, and the skin does not come off clean, then the melon is green. I hope I have been explicit enough to make it plain. You can easily learn by experimenting on two melons, one ripe and the other green (after they have been cut open), and noting the difference.

J. J. HARDY.

Lavonia, Ga., Oct. 31, 1889.

Friend H., I have been in the habit of deciding somewhat as you decide—by appearance; but I never thought of scraping the melon with the thumb-nail. Since you mention it, however, I am inclined to think that your test is a good one, and we hereby tender you our thanks.

THE IGNOTUM TOMATO AND THE BEES.

The packet of Ignotum tomato seed sent me last spring by you gave me 25 plants, which yielded a good crop of tomatoes. I set them alongside of Livingston's Prolific. The Ignotum, with me, grew smooth and nice, of good size, with only one fault; and that is, in the blow end of the tomato there seems to be a small scar left, or rusty spot. They seemed to be wonderful bearers.

As to the honey crop, that seems to be almost a failure with me this year. I have 196 colonies of bees, and only 1300 lbs. of honey, all told, extracted and comb honey combined. I would lay the cause here with me to the excessive rains through the season for honey-gathering.

Akin, N. Y.

J. LINGENFELTER.

THE DELICIOUS VERSUS THE STRATAGEM PEAS.

We have had the Stratagem pea for several years. They are an excellent pea, but we have found something decidedly better. It is called the Delicious. It has larger vines, larger pods, and larger peas, and they are decidedly more delicious. They are a little later than the Stratagem; but if you try them once I think you will drop the Stratagem and take these for your main crop. The first year they did not seem to be quite so prolific as the Stratagems, but this year I think they were fully their equal.

E. Z. GREEN.

Montague, Mich., Nov. 22, 1889.

HENDERSON'S BUSH LIMA BEAN.

With me, the Henderson lima bean is No. 1—no sign of any tendency to run, and is two weeks earlier than the pole small lima beans planted at the same time, and it has the appearance of yielding better than the pole lima.

GEO. DREW.

Bunker Hill, July 20, 1889.

We agree with you, friend D., except in your last statement. The bean is certainly

very prolific, but we somewhat doubt whether it will give us as many bushels to the acre as the pole lima beans.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE STANLEY EXTRACTOR DEFENDED.

I do not consider Mr. Coe qualified to pass a correct verdict on the Stanley extractor (see page 957), as the one he refers to was made by Mr. Stanley, who never gave proper care to their manufacture. Mr. Coe got from him a machine whose baskets did not fit his frames; and in ordering new baskets, *months* later, from me, he put them (probably) on the same arms as the first ones, and did not get the nicety of adjustment that is necessary, or else has a very weak operator. A nicely adjusted, well-made machine, is *easily run, easily reversed*, and is appreciated by those who have tons of honey to extract. I inclose a card from Mr. A—, who used three machines the past season, one in each apiary.

E. R. NEWCOMB.

Pleasant Valley, N. Y., Dec. 3, 1889.

The inclosed is the card referred to. We withhold the name, as requested by the writer.

E. R. Newcomb:—The extractors I bought of you are all I could ask for in a honey-extractor. I have extracted tons of honey the past season, and they have worked *well*; but for certain reasons I would rather not have my name go before the public.

We are glad to get this; and may we not hear from others who have used the Stanley? Let the truth be what it may. We shall be just as pleased to get testimony favoring the Stanley as our own extractor.

THE HONEY THAT WILL NOT CANDY.

Have you any extracted on hand that is not yet candied? The heating of it is a small matter; but if it is not yet candied, it is an indication that it will not granulate so readily as what we have had. We have never before had so much trouble with honey becoming candied, and simply because we have been using the linden honey almost entirely. I have had several lots of California extracted from New York, but none that has been real nice.

Allegheny, Pa., Nov. 15, 1889.

M. H. TWEED.

Friend T., you call attention to something we had not particularly thought about before, only I had observed that honey once candied is, as a rule, much more liable to candy again—that is, if it is not sealed from the air, like canned fruit. There have been quite a few complaints this present season, that honey candies unusually quick.

WINTERING BEES IN A FRUIT-CELLAR.

Can you tell me whether bees will winter as well in a cellar with apples and potatoes, as in one with bees only, other things being equal?

Roseburg, Mich., Nov. 20, 1889.

J. MITCHELL.

Friend M., my impression is that a cellar that is right for apples would be rather cold for bees; but some may perhaps prefer to have their bees as near the freezing-point as apples will bear. I think, however, that

most bee-keepers decide that a temperature just right to keep potatoes to the best advantage would be about right for bees. Those who advocate keeping the bees at from 45 to 50 would want the cellar rather warmer than is best for either apples or potatoes. Potatoes would be more likely to sprout, and the apples more likely to rot. Apples do very well when kept just at the freezing-point, and a little below does not seem to harm them. I do not think that the odor from apples or potatoes would do any harm, unless they were rotting. Of course, in that case we should not want them too near the bees. Potatoes and apples also need a certain degree of dampness. This was formerly thought to be detrimental; but I believe late decisions have left the matter somewhat undecided.

TOILERS OF THE SKY.

How gladsome are the songs that greet
Our ear from forest, field, and street!
The songs of toilers as they fly,
The myriad toilers of the sky.

We do not know the words of song
The singers sing that haste along;
But yet we know they're songs of praise,
And Jesus knows what each one says.

Lord, how minute thy love and care
For thy creation everywhere!
The smallest gnat the eye can see
Is toiling on and praising thee.

And shall the sons of Adam's race
Be dumb before that blessed face
Who, from the stable to the cross,
Hath lived and loved and died for us?
St. Mary's, Ontario, Can. F. M. MASTER.

WINTERING ON HONEY-DEW; WHEN WE CAN AND WHEN WE CAN NOT.

The discussion of Question 148 in the Nov. 15th GLEANINGS was very interesting to me, as I have had considerable experience with honey-dew. In looking over my diary I find that my bees have gathered no honey-dew since August, 1884, until the present season. During the season of 1884 they gathered about 20 pounds of honey-dew to the hive. I also remember taking all the honey-dew from every hive except one, and this one colony was the only one that died. Nine-tenths of the bee-keepers' bees around here died that same winter. I find also in my diary that the winter of 1884 was a very severe one. The bees were confined to their hives 75 days without a chance to fly. They were in from the 9th of January until the 26th of March. Twenty days during this time the thermometer was below zero. Bro. Root, I suppose if you had been here you would have given a few colonies honey-dew the following winter, to see if it was that which really killed the bees. It would not have killed them the following winter, I know, because 35 days was the longest time that they were confined to their hives, being from the 4th of January to the 9th of February, with only six days below zero. This would make all the difference in the world. My bees have not been confined to their hives 75 days in succession in any one winter since. Last winter 59 was the longest, or from the 5th of January until the 6th of March, with only two days be-

low zero. It seems of late years that the longest cold spells come in the latter part of winter. Now, it was not always this way. If we have a winter like 1882 the honey-dew will make the bees kind o' tired. During that winter the worst cold spell came in the fore part of winter, or from the 12th of November to the 27th of January, making 75 days of confinement. During the winter of 1880 the bees were kept in their hives 99 days in succession, or from the 4th of December to the 15th of March. Any honey-dew during that winter would have been fatal. Now, if the fore part of this winter consists of a prolonged cold spell, Bro. Doolittle's eyes will begin to stick out toward spring. If the longest cold spell keeps off until after the first of the year, any hive with less than ten pounds of honey-dew is safe. If they have more I should not like to insure them. I left very little honey-dew with mine this winter; but having only a limited amount of white honey on hand I have placed them on short rations for winter. I winter half in a cave, the rest on their summer stands.

I have sold 40 gallons of honey-dew up to date, at one dollar per gallon. It is as black as pine tar, and has a very unpleasant flavor. Some of my hives stored as much as 60 lbs. of it. They gathered all of it from the 20th of August to the 12th of September, just working in the mornings. I extracted about half of it, and left the rest in combs. I don't think my bees will starve the coming season, unless they starve this winter. J. DALLAS.

Sharpsville, Pa., Nov. 26, 1889.

Friend D., you speak only of wintering outdoors, if I am correct. How about keeping bees 100 days in confinement in the cellar, as many of our friends do right along? I am inclined to think that some specimens of honey-dew are very wholesome; but I am well aware that the greater part of it is very poor. Sometimes when I get a taste of it in comb honey, I find it so exceedingly disagreeable that I do not wonder that it kills bees. Who was it, pray, that bought forty gallons of honey-dew, as black as pine tar, and what did they want to do with it—that is, if you have no objection to letting us know? If it was used for flavoring tobacco, may be it was all right, although I should be much better pleased to hear that the tobacco, honey dew, and all had been thrown away or burned up.

THE "BEE ELDORADO OF THE WORLD."

I see by the last number of GLEANINGS that Mr. W. K. Ball, of Reno, Nevada, gave you a few items about alfalfa. I have no doubt but that, at some future day, that country he speaks of will be the bee Eldorado of the world. As there is considerable money in raising alfalfa, all the available land in that section will be set to this plant of the desert.

There is a long strip of territory on the east side of the Sierras, which extends from the northern boundary of Nevada down into Arizona. Our bee-keeping friend, Mr. John L. Gregg, is located on a continuation of this same belt. All through the Great American Desert, alfalfa would flourish if it could be irrigated, and then, truly, the "desert would blossom as the rose." On the west side of the Sierra Nevada mountains (in Eldorado Co.) it does not yield honey to amount to any thing. On the east side it seems to be the reverse as regards

the secretion of nectar. I suppose the change of climate, atmospheric conditions, and sandy soil are more favorable for honey secretion. Alfalfa flourishes best on sandy soil. It is a pretty sight to see a field of one hundred acres one vast sheet of purple blossoms.

S. L. WATKINS.

Placerville, Cal.

BEE-STINGS VS. RHEUMATISM; ANOTHER VALUABLE TESTIMONY.

I see many statements in GLEANINGS regarding the subject of bee-stings as a cure for rheumatism. I contracted it while in the army, and have been a great sufferer for many years, often being confined to my bed for months at a time, experiencing all the excruciating agony and pain that any mortal could endure. I was given up to die, by the best doctors in eastern Pennsylvania, being reduced to a mere skeleton of ninety pounds. After the doctors forsook me, and had told many of my neighbors that I could live but a few days at most, I, through the intervention of a kind Providence, gradually got better, and in three months I could get out on crutches, and in that condition I lived for six years, when I bought a swarm of bees in the spring of 1883. When the bees showed their temper I could not get away from them very lively, and I received many very severe stings. At one time I came near dying from stings. Oh, but I was sick! I broke out in blotches all over my body, and a numbness came over me so that I could not move my tongue to speak, and for once in my life I was a mute in reality. From that time I have often told my friends (when they speak of my improved condition) that I give the bees the credit of doing what the doctors could not. I am not careful to avoid an occasional sting, and I can walk around comfortably with a cane, and I weigh 196 pounds. I do not claim a complete cure, but I am so much improved over my former condition that I can not help hailing with joy any thing to relieve such terrible suffering as I have endured. *

S. W. TAYLOR.

Harveyville, Pa., Nov. 25, 1889.

BEE-STINGS A POSITIVE CURE FOR INFLAMMATORY RHEUMATISM.

I have read the reports in GLEANINGS about bee-stings as a remedy for rheumatism; and as there are some that claim it cures them, and some that it does not, I thought perhaps my case might interest you a little. I have suffered with the worst kind of what I call inflammatory rheumatism at different times for over fifteen years. Sometimes it would be two months when I could scarcely turn over in bed and could not even bear the bed clothes to touch the limb that was bad. My knees and ankles and feet were the most affected. It would commence in one joint, and get so bad that the joint would swell terribly, then all in a second it would ease off, and in about an hour the pain was all gone; then in perhaps another hour it had settled into another joint, and it was as bad as the first one. It would sometimes move three or four times before it had run its course, then I would gradually improve. Some years I would have only one or two spells, and some years I would have three or four, and it was mostly when I caught cold.

About four years ago I commenced to keep some bees, and, of course, I got the allotted number of stings, and now I have been three years without any rheumatism worth speaking about. I have had a slight aching this last rainy weather, but not

worth noticing. My opinion is, that stings will cure some kinds of rheumatism; but I am satisfied that there are more than one kind, and perhaps it will not affect some kinds. Of course, I can not be positive that the stings made the cure. It might be the honey I ate, and that is lots, as I am fond of it. then, again, it might be the change of climate, as I moved from Chicago to this place; but I don't think it is the change, as I have had some of my worst spells since I moved here. If I should have any more bad spells I will give the bees a good chance to annihilate it; and if they do I will let you know.

JOHN HAMMOND.

Buena Vista, O., Nov. 25, 1889.

Friend H., we are exceedingly obliged for your careful and conscientious report. No doubt you are in the right about it, and that there are different kinds of inflammatory rheumatism. The testimony is coming out, however, exceedingly strong on the side of bee-stings.

NOTES AND QUERIES.

We solicit for this department short items and questions of a practical nature; but all QUESTIONS, if accompanied by other matter, must be put upon a SEPARATE slip of paper with name and address.

We had nearly 4 inches of rain in October—the heaviest flood in October since 1849.

Long Beach, Cal., Nov. 4, 1889.

F. J. FARR.

100 BUSHELS FROM 2½ OF SEED.

I purchased 2½ bushels of Japanese buckwheat of you last spring, to sow, and I now have at least 100 bushels of it to sell—a better sample, I think, than that I got of you.

O. D. HACKLEY.

Batavia, N. Y., Nov. 22, 1889.

264 BUSHELS OF JAPANESE BUCKWHEAT FROM 7 ACRES.

We have this day thrashed the Japanese buckwheat raised on 7 acres of land from the first five bushels of seed bought of you. There was 264 bushels.

E. H. HOUGH.

Saybrook, Ohio, Oct. 17, 1889.

435 BUSHELS OF JAPANESE BUCKWHEAT FROM 20 ACRES, AND 625 BUSHELS OF WHEAT, ALL IN THE SAME SEASON.

I harvested 625 bushels of nice fultz wheat from 20 acres of ground. Then I plowed the ground, and sowed it to Japanese, from which I thrashed 435 bushels, making 1060 bushels of grain from 20 acres of land, and I have drilled the buckwheat stubble into wheat again. How is that for Kansas? I also have a good crop of honey. I do not think the Japanese is as good for honey as the silverhull.

Quenemo, Kan., Oct. 18, 1889.

J. H. KENNEDY.

BURLAP OR ENAMELED SHEETS FOR WINTER;
WHICH?

Would you advise using enameled cloth beneath the burlap chaff bag on top of bees, for wintering? Would not moisture condense thereon, and make it unpleasant for them? Would not a double thickness of burlap just above the bees and under the chaff cushion be a good plan?

WM. C. BAKER.

Shanesville, O., Oct. 25, 1889.

[We take off our enameled cloths when or soon after we put on the cushions, and put in their place burlap sheets. One thickness of burlap is sufficient. The enameled cloths are objectionable, for the reason you name.]

TO SAMPLE HONEY IN THE COMB, WITHOUT
MUTILATING.

I have a honey-quill for sampling honey, which will take the honey out of a single cell, of which I have seen no description, although it may be an old thing with bee-keepers. It is this: Take a quill of the right size at the large end; cut off the small end; push it down into a cell; put the thumb over the small end, and it will take out the honey of a single cell.

MARK COFFIN.

Milton, Ky., Nov. 26, 1889.

REPORTS ENCOURAGING.

FROM 50 TO 102, AND 4000 LBS. OF HONEY.

I started in the spring with 50 colonies. I increased to 102, and got 4000 lbs.—3400 of comb, and 600 of extracted. My bees are all in good shape to winter.

Chillicothe, Mo., Nov. 26, 1889.

GEO. W. BABB.

KEEPING BEES FOR RECREATION.

My honey crop is 115 lbs. extracted per colony, spring count. I keep the bees in the heart of the city. How is that for an engineer? I keep them for recreation.

R. B. HOLBROOK.

St. Paul, Minn., Nov. 7, 1889.

FROM 20 TO 34, AND 2380 LBS. OF HONEY.

I started with 20; increased to 34, and took 1520 lbs.—860 comb, and the rest extracted. This is my first year with bees. I am delighted with them. I put them in the cellar yesterday. I owe most of my success to GLEANINGS, which I could not do without.

G. L. HEAD.

La Valle, Wis., Nov. 21, 1889.

FROM 150 TO 240, AND 21,500 LBS. OF HONEY.

I commenced the season with 150 stands for extracted honey, and 8 for comb. I have extracted 21,500 lbs., and have taken 500 lbs. of comb honey, and increased to 240 stands. I kept them in two apiaries 6½ miles apart. I have sold all the honey at an average of 6½ cts. per lb.

ROBT. QUINN.

Shellsburg, Ia., Nov. 25, 1889.

As I have said nothing about my bees this year, here is my report: From 20 colonies, spring count, I secured 660 lbs. of extracted honey, and increased to 35. Honey was gathered from aster; too much wet weather through spring and summer to get any surplus. The honey from aster is splendid to winter on. Our winters are very mild. We have no packing to do. We just leave the bees on summer stands as they are.

S. L. KLUTTS.

Clear Creek, N. C., Nov. 15, 1889.

HONEY FROM RED CLOVER.

I put 28 swarms in cellar Nov. 15, 1888; took them out about April 15, 26 of them all right and two dead; no spring dwindling. I increased to 40, and extracted 1900 lbs. and had 200 lbs. of comb honey. The honey was from red clover. I have been noticing for years the reports of honey from red clover; and have also noticed that all the heavy work on it here has been on the mammoth clover, and the first year that it blossoms; after that it does not seem to amount to much for honey.

E. Z. GREEN.

Montague, Mich., Nov. 22, 1889.

FROM 14 TO 26, AND 1200 LBS. OF HONEY.

As far as I can learn, bees have done well around here. I had 14 hives last spring, now I have 26, most of them ten frames full of honey (I have no

extractor). I made over 1200 pounds of nice section honey, nearly all of it white. I had one large swarm come off the last of August. I put it in a nine-frame hive, and it filled and sealed all the frames. I have never known bees to make honey so late in the season, and so clear and white. I have no idea what they gathered it from.

Honey is in small demand here this fall, and but little money to be got on it.

Roseburg, Mich., Nov. 20, 1889. JNO. MITCHELL.

1000 COLONIES ON AN AREA OF FOUR MILES SQUARE.

There are at this time at least 1000 stands of bees here, located on land not to exceed four miles square. I have 204 stands myself in one place.

The sage and wild flowers make this county a bee's paradise; then there is the alfalfa, wheat, and corn they work on; and, in fact, all kinds of flowers. Now for results: I had 120 stands of bees last spring, and I divided about the middle of April to increase to 200. Every thing went nicely for about two weeks. They were making enough honey to live on; but the weather turned cold, and it snowed in the mountains clear down to the valley, on each side of the valley, which is about 15 miles wide here, and kept the weather so cold as to keep the bees in the hives, and about 30 of the divided hives starved before I knew it. The 28th of May, I divided again, and filled them up, and did not put on a super until the middle of June, which is a month later than usual here. Then I got 10,000 sections of nice white honey and 2000 pounds of extracted honey by the 15th of September, and all have enough to winter on. I took from one stand of bees this year, for another person, 254 sections of nice white honey, first class.

If you think this will do for a poor year, the next time you come to California just come down here from Reno, Nev., and see us. HENRY TRICKEY.

Bishops, Cal., Nov. 11, 1889.

REPORTS DISCOURAGING.

HONEY CROP A FAILURE.

Honey in this locality is a failure this year, due perhaps to the excessive rainfall. The usual quantity of pollen was within reach of the bees, and I had much trouble from their storing it in the sections. I should like to know the conditions which give rise to such trouble. We never had this experience before. If any back number of GLEANINGS states the cause, I should like to have it.

Strafford, Pa., Nov. 9, 1889. CHAS. H. HARRISON.

VERY DISCOURAGING—GOING TO BRIMSTONE THE BEES BECAUSE THEY DON'T PAY.

You will have to put me in Blasted Hopes. I commenced last spring with 75 colonies, mostly strong; increased to 83, with 600 lbs. of comb honey; but this is not the worst, for I expect to have to sell for 10 or 12 cts. per lb., for I am informed of a lot of 8000 lbs. which sold for 10 cts. If this is not discouraging, please tell what is. In regard to reports encouraging, I think there are two discouraging to one encouraging, if they could be written up. You say, if one can not keep bees without brimstoning some, they had better go out of the business; but by the time this reaches A. I. Root, some of mine will be dead by its use. NELSON DEWEY.

Adrian, Mich., Nov. 10, 1889.

OUR QUESTION-BOX.

With Replies from our best Authorities on Bees.

All queries sent in for this department should be briefly stated, and free from any possible ambiguity. The question or questions should be written upon a separate slip of paper, and marked, "For Our Question-Box."

QUESTION 150.—*a. Taking one year with another, what is your average honey crop in pounds? and from how many colonies, on the average? State whether for comb or extracted. b. Do you think you would increase or decrease your annual income by keeping more than your present number of apiaries, and employing more help?*

a. 100 pounds of extracted. b. I think we should make more income by keeping more apiaries and employing more help.

Wisconsin. S. W.

E. FRANCE.

a. I think something less than 40 lbs. of comb per colony, from about 200 colonies. b. Yes, if I could get the right help.

Illinois. N.

C. C. MILLER.

Until the past three years it had been 75 pounds, about 25 colonies. We could do better by keeping more. Indeed, we have increased to over 70 now.

Michigan. C.

A. J. COOK.

a. About 80 pounds of extracted, from an average of 100 colonies. b. Different apiaries in different localities would certainly increase the yearly income if they are well attended.

Louisiana. E. C.

P. L. VIALLO.

a. I consider 45 to 50 pounds of comb honey a good average yield, excepting in seasons of failure like the past in this vicinity. b. I think I could increase, but may be I would not.

Ohio. N. W.

H. R. BOARDMAN.

a. About 80 pounds during the past 17 years, with an average of about 45 colonies, spring count. Mostly comb honey. b. Increase by keeping more if I could attend to them myself; but I have too many "irons in the fire" to keep more.

New York. C.

G. M. DOOLITTLE.

a. I can not say. I have not kept a sufficiently careful record for about ten years to state positively. b. Decrease in this locality, with the poor seasons we have had during the past five years. If the apiarian expects a profit, he must do his own work.

Illinois.

MRS. L. HARRISON.

a. I am unable to say. Our last four seasons were too poor to keep a correct account. b. Poor seasons and prices of honey did not encourage myself and neighbors to increase our apiaries. The tendency is the other way.

Ohio. S. W.

C. F. MUTH.

My average honey crop for the last ten years figures about 1580 pounds. My number of colonies in spring has varied from 17 survivors of a winter, when my apiary mostly perished, to 121, when they didn't perish. The average is 77. To establish out-apiaries, and run them by hired help, would evidently run me behind hand.

Ohio. N. W.

E. E. HASTY.

a. I have no means of knowing what my average honey crop has been. Some years none, as in 1887 and '88. This year I have about 30 pounds per colony of surplus, and I guess it might be called comb honey, for it is still in the comb (brood-combs), and

all sealed over. b. That would depend upon the locality and the honey-flow.

Ohio. N. W.

A. B. MASON.

Between forty and fifty pounds per colony, from five hundred to a thousand colonies. Comb honey. We think we are entitled to about fifty pounds as an average, with good swarms. It is very doubtful whether the *net* income would be increased.

New York. C.

P. H. ELWOOD.

a. For the past 10 years my average sales have been about nine tons per year, comb honey, from an average of about 350 colonies. This is averaging the ten years, and is simply an off-hand estimate, as it would take too long to look up the exact figures. b. Yes, possibly for ten years to come, as I am learning more and more about the business every year, and especially how to economize.

Vermont. N. W.

A. E. MANUM.

a. 75 pounds to the hive, with about 300 hives to the apiary, extracted honey. b. If I had abundance of energy to expend I would have more apiaries; but not now feeling capable of looking after things rigidly, I am best off with a small number.

Larger boats may venture more,
But little boats must keep near shore.

California. S. W.

R. WILKIN.

I can not give exact figures for more than a part of the time, but I should estimate my average yield per colony at 45 pounds of comb, or 90 of extracted. This includes the season of 1886, when I did not get a hundred pounds of surplus from my whole apiary, and the very poor season of 1887. This was from an average of about 90 colonies, spring count. I think I could increase my income somewhat by keeping more bees.

Illinois. N. C.

J. A. GREEN.

a. Our average, for 15 years or more, is between 21 and 22 thousand pounds of extracted honey from 350 to 400 colonies. b. Our six apiaries are managed by a single man, excepting a few days when we are in a hurry to put the supers on the hives; then we employ another man; and when we extract we have work for two men and a boy besides our apiarist. We could increase the income by increasing the help and the apiaries, but it would involve more responsibility, and we do not wish to try it.

Illinois. N. W.

DADANT & SON.

a. My average crop for about ten years was a minute fraction over 110 pounds per colony, mostly extracted. In estimating yields, I count all colonies there are in the yard, both large and small, at the commencement of the honey-flow, before any new colonies are made. Number of colonies varied from 30 to 140, and averaged nearly 100. My best average yield was from 108 colonies, spring count. b. Annual income would be decreased unless the number of colonies was increased as well as the number of apiaries.

Cuba.

O. O. POPPLETON.

Our greatest yield from an apiary has been 100 lbs. per colony. Certain colonies ran up to over 200 lbs. Our average yield has been not far from 40 lbs. per colony, for a series of years. Extracted honey, and from 150 colonies. b. It has been our endeavor to increase our colonies, and establish out-apiaries. We have thus far employed but little help to run two apiaries. A very little more help

at the right time would enable us to run two more apiaries, with increased income.

New York. E.

RAMBLER.

I can not answer this question. I have not kept a record. It lies between fifty and a hundred pounds of extracted honey, taking all of the years together, I presume. Where one sells bees, both spring and fall, changing his number of colonies constantly, and raising both comb and extracted honey in the same apiary, as well as increase, unless he keeps a careful record-book it is impossible to answer question a. Question b. is also just as knotty. I know but very little, and believe but very little, in regard to overstocking. As far as the help question is concerned, it would be very profitable to increase the number of colonies, for the cost of help pro rata would decrease. That is one point against out-apiaries; but in regard to overstocking, 21 years' experience is not enough for me. Although I have taken much pains to pump such bee-keepers as I met, who ought to know most about it, I must say I have never yet found one who could shed one clear ray of light on the subject. It is the most obscure problem in bee-keeping, that of overstocking, and yet very much hinges on it.

Michigan. S. W.

JAMES HEDDON.

a. The last four seasons, my honey crop averaged 29,000 pounds extracted and 500 pounds of comb honey, from 250 to 300 colonies, spring count. Four years ago I had only 8000 pounds for my crop, having lost a large proportion of my bees the previous winter. b. How can I tell what I could do till I try? Do you suppose Grant, Lee, Sherman, and other officers in the late war knew what they could do until they tried? Trial proved their capacity to vary greatly. Some were competent to handle 100,000 men or more. The outside limit of others was 10,000, and others proved themselves unfit to handle any. As in war, so in bee-keeping and other pursuits. Capt. Hetherington has proved himself competent to manage a large number of colonies; so did Adam Grimm; so did Harbison, till he found something to suit him better. In my own case I at one time thought of running up into the thousands; but poor health warned me to curb my ambition. At present, had I the strength and inclination, lack of pasture and locations would bar the speculation; for should bee-keepers increase in the future as they have in the past two years it would soon be hard to find an unoccupied field.

Wisconsin. S. W.

S. I. FREEBORN.

Well done, friends. A beginner might well take courage from the above replies. Yet there is, however, a glimpse now and then of blasted hopes. I notice, also, that a good many of the friends have settled down to the idea that they prefer to take life a little easier, even if they do lose some dollars that might be made by shouldering more responsibilities. There is a good point here. I now call to mind quite a few among the bee-friends who have made their lives unhappy and perhaps unprofitable by trying to do too many things, or, if you choose, too much. Better have a little, and do it well, than to attempt great things, and be for ever worried to death, and in hot water all the time. Many of us are a little older than we were fifteen or twenty years ago, and I trust, also, a little wiser. Contentment is better than riches.



Every boy or girl, under 15 years of age, who writes a letter for this department, CONTAINING SOME VALUABLE FACT, NOT GENERALLY KNOWN, ON BEES OR OTHER MATTERS, will receive one of David Cook's excellent five-cent Sunday-school books. Many of these books contain the same matter that you find in Sunday-school books costing from \$1.00 to \$1.50. If you have had one or more books, give us the names that we may not send the same twice. We have now in stock six different books, as follows: viz., *Sheer Off, Silver Keys, The Giant-Killer*; or, *The Roby Family, Rescued from Egypt, Pilgrim's Progress, and Ten Nights in a Bar-Room*. We have also *Our Homes, Part I., and Our Homes, Part II.* Besides the above books, you may have a photograph of our old house apiary, and a photograph of our own apiary, both taken a great many years ago. In the former is a picture of *Novice, Blue Eyes, and Caddy*, and a glimpse of *Ernest*. We have also some pretty little colored pictures of birds, fruits, flowers, etc., suitable for framing. You can have your choice of any one of the above pictures or books for every letter that gives us some valuable piece of information.

GRANDPA'S BEES.

My grandpa has 16 colonies of bees. He has one hive on a large rock. He makes bee-hives. He has a sawmill. He runs the mill by horsepower.

WILL HARRINGTON, age 11.

Setley, Pa., Nov. 28, 1889.

Papa has 45 swarms and 10 Simplicity hives. He has some Italians, blacks, and hybrids. He doesn't like the hybrids very well, but he likes the blacks best. He did lose two swarms. We take GLEANINGS, and expect to for some time.

ELIJAH B. WILSON, age 11.

Blaine, W. Va., Nov. 21, 1889.

AN OLD LADY 94 YEARS OLD.

I was over to Uncle Henry Bixby's. He takes GLEANINGS. My papa lives on a rented farm, and takes care of an old lady. She is the oldest person in the town of Hornby. She is in her 94th year. She reads her Bible without glasses, and she can go upstairs as spry as a cat. I am 11 years old, and love to go to Sabbath-school. Uncle Henry Bixby, as we children call him, is our pastor and superintendent. We all love him.

MATTIE FERRO.

Dyke, N. Y., Oct. 13, 1889.

HOW A BOY MADE HIS BEES PAY.

I am 14 years old; and having a desire to learn the bee-business, last spring I bought a colony of pure Italian bees, for which I paid \$6.00. This season they made 30 pounds of nice comb honey, besides being in good shape for winter. I have sold enough honey to pay for GLEANINGS, and think it is a valuable paper for bee-keepers. I bought your A B C book last spring, and have learned a great deal about bees.

CHAS. V. HOFFMAN.

Sidney, N. J., Nov. 25, 1889.

EARLY-POLLEN GATHERERS.

For five years past I have been writing to you annually, when the bees commenced bringing in pollen. In these five years they commenced about the first of February each year. This year they commenced bringing in pollen on the 16th of January, from the water or white elm. This is a large tree growing on the river, and buds very early. The pollen brought in was of a canary color, and very soft. My pa closed the season with 102 colonies; but after uniting several he went into winter

quarters with 82. These he wintered on their summer stands in Simplicity hives, and protected them from the cold northerly by a high plank wall.

LIZZIE L. MULLIN, age 13.

Oakland, Tex., Jan. 22, 1889.

BEES AND FRUIT; VALUABLE TESTIMONY OF A LITTLE GIRL.

We saw in your journal that some think the bees eat the grapes; but my pa does not think they do, unless the little ruby-crown kinglet bird makes a tiny little hole in them. We have 75 hives of bees, and have sold six tons of grapes. We have a large peach and apple orchard, and the bees do not disturb them.

MARCIA HOPKINS, age 11.

Brownhelm, Ohio, Oct. 20, 1889.

LILLIE REPORTS A GOOD YIELD; WHITE FALL HONEY.

We got from 35 colonies, spring count, about 6000 lbs. of honey this year, and increased to 70. The clover season lasted about two months before linn bloomed. After the linn and clover were gone we had a good crop of fall honey. There were about 10 hives of comb honey that were partly filled before the fall flowers bloomed, and we did not take the honey off from them until October, and it was as white as the clover honey that we got in June. Is it possible that they could have finished them with any thing but smartweed, Spanish needle, and the other fall flowers? We have the Syrian bees, and have not been troubled with robbers this fall, as usual, but we have had one or two stolen.

LILLIE GRAHAM, age 13.

Agency, Mo., Oct. 28, 1889.

Friend Lillie, it is hardly possible that Spanish needle or other ordinary fall flowers furnished light honey. Smartweed might come a little nearer to it, but I am inclined to think your light honey came from red clover—that is, if there is any in your vicinity.

A REPORT FROM A GERMAN APIARY; CAN WE WINTER ON THE ROOF OF THE HOUSE?

To-day papa is hauling bees. They have done very poorly this year, and in one of our out-apiaries we had some of the honey and bees stolen. It seems we had hard luck with bees this year. Some of our swarms got lost. Of August swarms we had plenty, but they all went to the woods. In another out-apiary we lost about one-third by moths and poor fields. Our last report from Germany says it looks far better there. Hives are all full, both straw and wooden hives. Buckwheat and heather have had good weather, and our bees are in the middle of both. This winter papa is going to put his bees on the roof, as our home apiary is too small, on account of new buildings. I should like to know about wintering on the roof in well-packed chaff hives. We have tried a few last winter with success. Papa doesn't like cellar wintering, as we live in the city.

ANNA BLANKEN, age 12.

Jersey City, N. J., Oct. 24, 1889.

Friend Anna, bees could probably be wintered quite successfully on the roof in Jersey City. Friend Muth, in Cincinnati, has wintered his so, for years, quite successfully. I should prefer to have them on the roof of a wing of a house, so that the taller portion, or the house proper, might extend higher, and keep off the north or west winds.

OUR HOMES.

He that is slow to anger is better than the mighty; and he that ruleth his spirit than he that taketh a city.—PROV. 16: 32.

DECEMBER 7 was a beautiful sunny day; in fact, it seemed more like April or May than December; but at the Home of the Honey-bees we were exceedingly anxious that it should be a fine day.

The foundation for our large reservoir was already finished, upon the hill near the factory. The staves for the great tub were piled up close by. The windmill, pump, and other machinery, were all in readiness, and the man was expected on the morning train to "boss the job" of putting the machinery in place, and rearing the whole structure. We telegraphed him to come the day before; but as it was rainy we did not feel very bad when we found that he did not come. When the sun, bright, clear, and warm, shone out on the day in question, however, we felt very anxious. Our people are all interested in the matter, and the workers in wood, metals, dirt, brick, stone, etc., were almost as anxious as I to see this individual who travels from place to place bossing the erection of such structures. Sure enough, he got off the train. After a few brief questions he told the carpenters what to do; then the masons were set at work; then the ditchers commenced in the trenches, to put in the great wooden pipes, down out of the way of frost, and all worked with a will.

I now wish to digress from my story a little right here, to consider this matter of bossing others, or, if you choose, of taking charge of a number of men. It comes a good deal in the same line as taking charge of out-apiaries—having several apiaries instead of one. How is it that some have a gift in that line, and others have not? The man who came to put up our waterworks receives four dollars a day, and all expenses. There is nothing about him at first sight to indicate that he is much more than a common day laborer; but the great firm of Fairbanks, Morse & Co., who put up such works, and guarantee them against leakage, etc., gave him an excellent recommendation. They said, that whatever work he put up never had to be done over afterward. This is a great thing, I grant, and I watched our new friend anxiously to see how he had earned this high reputation. I soon discovered that it was almost altogether in giving his personal supervision to every little point. I presume he has usually two or three men to help him—possibly four. Here at the Home of the Honey-bees we are in the habit of setting a dozen, or perhaps thirty or forty at work all at once. This man insisted on doing every thing himself, pretty much. His helpers are simply waiters. They handed him the tools, and held the pieces while he drove the nails or turned the bolts. He was not satisfied unless he had the wrench in hand and tried every nut and bolt before he left it. With the years of experience he has had in putting up similar structures, and perhaps in repairing faulty ones, he

knew just where to expect something to give way. He never broke a bolt or bursted a joint by turning it too hard; but every thing was turned up just about as far as the strength of metals or wood would allow. He never said, "I guess that will do well enough," and let it go. If a bolt turned in its place, or if a nut slipped a thread, it had to be taken out, and a new one put in its place. Undertaking such kind of work in December was exceedingly risky, and I was very anxious indeed to have the whole arrangement moving at once, from the factory clear to the top of the reservoir and windmill tower. I am so much in the habit of being "boss" of every thing on the premises, it tried me exceedingly to be obliged to await the movements of a single individual. I could have my choice, it is true; but if he did not have every thing just as he wanted it, the company would not be responsible for a failure of some part of the work. It was quite a cross for me to bear; but, dear friends, it did me good. It was just the discipline I needed, pretty nearly if not quite in a line with the above thought in our text. Now, in our work here, no one is ever idle. Strangers who come here to work are often a good deal surprised, and sometimes feel hurt, because they are told that nobody ever need wait for somebody else during working hours. A few days ago a friend of mine hired three men to come and help him thrash. The machine did not get along, and so they sat down and loafed the whole half-day, waiting for the machine to come, and he had to pay them full wages. I have never done such a thing in my life. I would have told those men to pick up stones from the field, gather up rubbish and cut it into firewood, dig ditches, slick up the yard, pull weeds, straighten water-courses, fix the fences, straighten up the underpinning under buildings before it gives out, or something of that sort. I do not believe that I ever saw a homestead where I could not set half a dozen men at work profitably for half a day or several days—that is, more profitably than to sit still and wait for somebody else. Very likely I have a special gift in this direction.

As this is a matter of exceedingly great importance to most of our readers, I wish to digress still a little further to tell you how I learned it. It came about principally in the effort to find employment for people whom I wished to benefit. To come right to the point, I think I may say, because I wished to bring them to Christ Jesus. I have taxed my wits and my abilities day and night, for perhaps twenty years, in this direction. Sometimes, by an unexpected occurrence, three, four, or half a dozen men are stopped in their work, and they come to me. Perhaps others are waiting for me besides. My plan is this:

I first say, "Boys, just stand right still, just a minute; don't go away, any of you, until I give you leave. Here, George, you pick up stones over in that field."

"All right," says George; "but where shall I put them?"

"Put them in little heaps until I get ready to tell you. Willie, go to the fruit-

house and get a wheelbarrow full of potato-boxes. Get the oldest ones you can find. Fred, get a hoe and give the asparagus a most thorough cleaning-out. Do it so I can't find a weed nor a blade of grass. Now look sharp, and don't skip any. Mr. W., take your spade, and look out for the outlet to all the underdrains. See that they are exactly as they ought to be," etc.

Now, I know by experience that most of them—perhaps all of them—will misunderstand, and must be looked after. The one who went to picking up stones, will, if he is a small boy, perhaps spend time in picking up stones so small that they do no harm. He must be furnished a sample, and told not to go under that size. The boy who is to clean out the weeds may waste time in looking for a tool, and perhaps he would get the wrong patch. The one who went after the boxes must be told what to do next when he comes back. Very likely Mr. W. was not with us when the underdrains were all located, and therefore will not find the outlets without showing. So I hurry around from one to another, meanwhile reviewing the work to see if there is not something of still more importance than that which the boys were started at hastily. At such times I almost always find something or other that was in very great need of attention, so nothing is lost. Now, my friend, you may think it a little strange, but I have, by years of experience, learned to set over a hundred people at work in just this way, and not only manage it all profitably, but I enjoy it; yes, it gives me a kind of happiness that I can not find otherwise, and that I enjoy almost as much as any thing else in this world, furnishing my friends and neighbors the wherewith to earn their daily bread by honest, ennobling toil. Of course, I commenced on a small scale. At first I had one man to help me. When we two could lay up money, a third was called in, and so on. You may say, we can not all do this kind of work. True; but there is an unceasing demand—a constant and increasing unfilled want for men who can boss others. Now, then, you can never make any progress at all in this line until you can rule *self*. This new friend I have been speaking of does his work a great deal better than I do. It would hardly be safe to trust me with an important work of engineering where much money and may be human life depended on the result. In fact, I learned long ago not to trust my judgment and experience alone in such matters. Able and experienced mechanics in wood, stone, earth, and metals, are my companions; and it would be folly for me to rush stubbornly against their better judgment. Sometimes we hold counsel, or call in the aid of mechanics, machinists, etc., but I am always troubled and worried to find that these careful, high-priced men, let those under them waste time. Sometimes expensive men are kept on hand, even though they work less than half of their time. I am told that there is no other way. In almost every department of knowledge, science, art, and industry, I come every little while to the point where I long for something more than

human. I want great accuracy, combined with an ability to look after a great number of people all at one time. Very likely these two qualifications never existed in any single individual; but by putting a good many heads together, however, we accomplish what no one man ever could accomplish. And may God be praised that it is so! We are dependent upon one another, and if we do not work together with a cheerful and friendly good will we shall never succeed in doing great things. Now, then, friends, with your permission we will go back to our story of that bright sunshiny December morning. It needed your old friend, A. I. Root, at almost every turn, to tell the builder just what his ideas were, and how he would like to have things arranged. For instance, some bolts were wanted that we did not expect to need, and so a boy had to go half a mile after them. The ditchers, too, needed a little caution. They were digging the trenches wider than they needed to be, thus throwing out dirt uselessly. Lumber was wanted from the planing-mill; somebody could not find the tool he wanted; several things at the factory needed looking after, for John and Ernest were both attending the national convention at Brantford. One or two new hands had made their appearance, and wanted to be shown where they were to work. Before noon the printers wanted copy, or instructions in regard to it, that must be seen to personally by A. I. Root, in the absence of Ernest, the assistant editor. I went through it all pretty well, however, until symptoms of waning strength began to remind me that it was time for my noonday nap. I looked at my watch, and I found that, if I made a bee-line for my accustomed lounge, I should have just time to make it. The day was so fine, and so many things needed my personal attention, that it seemed almost folly to think of going off to *sleep* when everybody was so busy, and in so much danger of going wrong if I did not happen to be within hailing distance. I remembered, however, that I should not only suffer during the half-hour that has so long been set aside for my accustomed nap, but I knew I should be unfit for clear and cool judgment all the afternoon. I have tried it repeatedly; but unless I have my noonday nap I feel about as most of you do who have been kept awake all night long. The plain, wise thing to do was to drop business and seek rest. Quite a few got in my way. Some wanted employment; others wanted to hinder me with idle, unimportant questions; and as I almost reached my home I became quite nervous and fidgety. Some little girls were coming along the walk, but I felt too much exhausted and used up to feel capable of giving them even the smiling and pleasant "good-morning" that I knew I ought to give. I was in a hurry, for the minutes were precious. At such times when I am pushing blindly ahead for my lounge, even a *quarter of a minute* seems a hindrance. I long to be out of sight, and away from everybody, where I need not even *smile* unless I feel like it. Now, do not imagine, dear friends, that at such times I feel par-

ticularly cross. I feel kindly and pleasantly toward everybody; but, oh, how I do wish to be just let alone! A good old lady who lives in the neighborhood has sometimes tried me exceedingly by insisting on replies in regard to the weather, the state of the roads, etc. Why, I have actually left the sidewalk and pushed off through the apiary, simply to be excused from talking, or using my brains when they were already *used up*. Well, I pushed away over to the opposite side of the walk, that I might let the little girls pass, without slacking up my rapid footsteps. One of them was accompanied by a little yellow dog. At sight of me, with my rapid movements, he seemed to think it incumbent upon his dogship to bark and growl; and when I stepped clear off the walk to evade him, he flew at me, snapping and snarling, and, in spite of all I could do, he grabbed me by the leg and bit me quite severely, although he did not draw blood. I tried to kick him, but he was too adroit, and I was too tired to use much strength. I made up my mind that any dog that thus molests peaceable passers-by ought to be killed, and so I looked for a stone or stick to put my "project" into execution. The dog watched me as closely as I watched him; and, probably noticing that I could not find any particular stone, he attempted to bite me again. I have sometimes said that I never wanted a pistol. Just then it occurred to me that such an implement would be *exceedingly* convenient. Ernest has a shotgun, but he was away, and his house was locked up. Uncle Hen, also, has one to kill rats; but I could not see him anywhere in sight. It would have been a real luxury just then to offer somebody a five-dollar bill to make sure work of that obnoxious "yaller dorg." Just then it occurred to me, "Look here, old friend A. I. Root, it strikes me you are considerably stirred up. Hadn't you better cool off a little?" I did not say any thing out loud, but I said to myself, "The good of passers-by and community at large demands that that dog be killed."

"Very likely it does; but the minutes are passing. Which is of the most importance—that you have your nap, and the clear mental vision that will come after it, or that you set the little girls to weeping by killing their pet dog—that is, if you are *smurt enough* to get him killed by using up your whole half-hour of rest?"

I looked—was it viciously or wistfully?—toward the dog. I made some big resolutions as I gave him a farewell glance while he went off wagging his tail. I succeeded in gaining my coveted place of rest and retirement, but I was too much stirred up to get to sleep. The little voice resumed:

"Look here, my friend; do you expect to get to sleep when you are vehemently planning ways and means of putting that dog out of existence? Why trouble yourself by rehearsing what you will say to the owner when you meet him after dinner? and, my friend, how does your present mood harmonize with the little text you are in the habit of thinking over and over, as you loose consciousness?"

I will both lay me down in peace, and sleep; for thou, Lord, only makest me dwell in safety.

Then came the thought, "It is a bigger task than I am equal to." By and by another text followed, something in that line:

I can do all things through Christ which strengtheneth me.

The twinges in the calf of my leg where the dog bit me still tended to rouse combative feelings, and for a little time I feared I was not going to make the desired haven. Then I remembered the time when I "laid me down in peace to sleep," when the factory warehouse was burning. "Shall a poor mistaken yellow dog spoil my usefulness, spoil my temper, and spoil my rest during this bright day when so many responsibilities are resting on my shoulders, and when I am needed so much?" Then came thoughts in the line of that beautiful little text, at the head of our talk to-day:

He that is slow to anger is better than the mighty; and he that ruleth his spirit than he that taketh a city.

And I conquered the bad spirit. I slept, and woke up just as the whistle was blowing, refreshed in mind and body, and with praise and thanksgiving in my heart. If fifteen minutes of sleep can work such a miracle to others who are subject to nervous exhaustion, I shall do good service in urging upon tired and exhausted humanity this God-given remedy—this plan of invigorating without medicine. When I glanced at the hill as I hurried toward the factory, one of the staves of the great tub was raised aloft, clearly and sharply defined against the blue sky. Before I had passed the hundred yards between my residence, and the factory where the notes of the organ proclaimed the noon service begun, three more staves were placed beside the first one, and I felt happy, and for several reasons. I had ruled the spirit that would do me harm. It may not have been a very evil spirit, it is true; but it was one that would have unfitted me for my task had I listened to it; and I felt happy, too, to think that the better spirit had triumphed—that A. I. Root had effectually, calmly, and coolly and deliberately *ruled*, and not a sudden impulse. Do you wish, dear reader, to know the fate of that yellow dog? Well, so far as I know he still goes about on four legs; but I hope not, however, abusing people who are attending to their own affairs on their own premises, as he abused me. I still think, however, that he and all of his race that have *that* disposition should be abolished from—sidewalks. May be they ought to be extinguished completely from the face of the earth. If a majority of the community should so decide, all right; but in handling all these questions we should remember there a multitude of tastes to consult. Dogs have seemed to me to be a rather useless appendage to society, therefore I am not a fit one to judge. I have not yet spoken to the owner of the dog, neither do I know the laws of our land in regard to cases of this sort. This I do know, however, that whatever needs to be done should be done in a line of the littletext which says, "If it be

possible, as much as lieth in you, live peacefully with all men."

The big reservoir is now finished, and over it the windmill spreads its wings, almost ready to commence its task of keeping the great tank constantly full. It stands against the sky "a thing of beauty," and I hope it may prove to be "a joy forever" to the community round about it. We have already been discussing placing upon it in great letters, so that they may be read for half a mile or more, the little text that has been so much a favorite of mine for a few months past: "Not to be ministered unto, but to minister." One of the friends has suggested another good one, if it were not so long, to be written in great letters between the hoops: "Whoso drinketh of this water shall thirst again; but whoso drinketh of the water that I shall give him, shall never thirst."

GLEANINGS IN BEE CULTURE.

Published Semi-Monthly.

A. I. ROOT,
EDITOR AND PUBLISHER,
MEDINA, OHIO.

TERMS: \$1.00 PER YEAR, POSTPAID.

For Clubbing Rates, See First Page of Reading Matter.

MEDINA, DEC. 15, 1889.

Seest thou a man diligent in his business? he shall stand before kings; he shall not stand before mean men.—PROV. 22, 29.

AN ERROR IN DISTANCE.

Our good friend M. H. Hunt, of Bell Branch, Mich., calls my attention to the fact that I stated that he lived four miles from the depot, whereas he is only two and a half miles away. As some of his customers might think he did not tell the exact truth in his catalogue, I make the correction and beg pardon.

TILLINGHAST'S FLORAL ALBUM.

THIS is a beautiful collection of chromos of all of the principal flowers in cultivation, including most of the honey-plants, and all in their natural colors. To those who wish to know what our honey-producing flowers look like, and to be able to identify them at a glance, it should be worth a good deal. See advertisement in this issue.

CHRISTMAS PRESENTS.

WE present, along with this number, to all our readers, with compliments of the season and our best wishes for the new year, a Christmas souvenir in the form of a 16-page picture-gallery. We have not yet reached the 10,000 mark, and we trust this souvenir will be a reminder to our many friends to make an extra effort to get their share of the number of names necessary to make it 10,000 by Jan. 1, and thus return the compliment.

A NEW PRESS FOR GLEANINGS.

ABOUT the first of February, GLEANINGS will be printed on a brand-new 16-page Campbell oscillator book-press. Our old one has been obliged to run

almost night and day for several weeks, and we concluded that we should have to have something that would do the work more rapidly, or else decrease our subscription list. The press is the latest in design, and is the best book-press we could purchase. It will cost \$2500. We are aiming at the highest perfection in the printer's art; and while we are not at all ashamed of our past record as printers, we hope to do even better.

THE NUMBER OF PAGES IN A VOLUME OF GLEANINGS.

THE present volume scores 1024 pages. We shall probably do the same, or perhaps better, next year. We call the attention of our readers to our large index of illustrations, and also to the topical index. We have left out our usual index of correspondents, as we thought it to be the least valuable of the three. It takes an immense amount of labor and painstaking care to get it out; and we believe our readers will prefer the same energy expended in other departments of the journal.

FIRST-CLASS POULTRY WANTED.

WE are having quite a good many inquiries, especially of late, in regard to fine poultry. Letters read something like this: "Mr. Root, could you furnish me a nice pair of Plymouth Rocks? If not, please give me the address of some good man." Somebody else wants Light Brahmas, and so it is with the other standard breeds. Now, if I should undertake to sell poultry with all the other business I have, I might go crazy; therefore I should like to have some poultry-breeder among our bee-folks keep a small standing advertisement in GLEANINGS. It seems to me that the business ought to pay, with the prices poultry-breeders seem to be getting. I picked out a trio of Light Brahmas at our county fair, that suited me very well. But what do you suppose the owner wanted for them? Only \$6.00!

DELUGING EDITORS WITH FACTS ABOUT COMB HONEY.

SOME time ago the Chicago *Herald* repeated the old comb-honey slander; namely, that about comb honey manufactured artificially, filled with glucose, and capped over with appropriate machinery. Brother Newman wrote them a very courteous and gentlemanly letter, pointing out their mistake. We also wrote them, forwarding one of our \$1000 reward cards. It seems, also, that bee-keepers from all points of the compass deluged the editor with letters. The *Herald* for Saturday, Nov. 23, finally comes out with a long article on bees and their work, giving some facts in regard to the honey-business, how foundation is made, etc., although it clings to the idea that the liquid article is adulterated to a certain extent. It says, after the first statement appeared in the *Herald*, in regard to adulterated or manufactured comb honey, it "was at once inundated with a flood of letters from bee and honey men, who declared that honey-comb can not be made, filled with honey, and sealed with appropriate machinery so as to escape detection in the market; and," it says, "this statement is doubtless true." Right here is a very suggestive fact: There is nothing in the world that will have such an effect upon editors who have misrepresented our industry as to deluge them with letters, not from editors of bee-papers alone, but from the subscribers themselves. A flood of letters from bee-keep-

ers far and wide will have vastly more effect than letters from two or three editors of bee-papers alone. We hope our subscribers will remember the hint, and deluge the next offending paper.

CRAZY EDITORS.

It is the editor of GLEANINGS IN BEE CULTURE I have in mind, and not that of any other periodical. This crazy editor, after publishing a pretty fair journal for almost 17 years, toward the close of the 17th year it seems has got into a fashion of attaching an answer intended for one correspondent to an article written by another one. The first appeared in our issue of Nov. 15, at the end of friend Manum's article. The boss printer said he wanted about so many inches of matter to fill up a given space. I understood him—or at least I got it into my head—that the space was after friend Boardman's article entitled "A Model Bee-yard," therefore I gave the printers the required amount of copy for the matter in view. Turn to page 886, and read the last half of my reply to friend Manum, and you will understand it. In the same issue, on page 893, is a short item, headed "Rat-tailed Maggots." I dictated a reply to this, which, for some reason or other, did not show up on the printed page. It, however, does show up, greatly to our consternation, at the end of Prof. Cook's excellent article on cuckoo-bees, page 947. It is not such a terrible matter, it is true, but it gives one who turns the pages of GLEANINGS an impression that its editor has his head filled with reservoirs, windmills, or something else, besides the business in question. We hope that at least 16 years more may pass before we ever have occasion to make such a lengthy apology again, at least in this line.

The foot-note to the article on cuckoo-bees should have read as follows:

Friend Cook, you say these strange intruders are only males and females. Now, a host of perplexing questions come in here. Is every female a queen? If so, who shall fix the limit of their increase if they fill up hives with brood, and the bees take care of them? Do the males and females meet in the open air, as do honey-bees? and if they winter over in the hive, why do they not continually occupy all of the available cells with eggs? Very likely, where every worker-bee is a queen they are not all as prolific as a honey-bee queen—at least we hope not. It seems to me, however, that it must be that our honey-bees recognize them sufficiently to be able to make, at least to a certain extent, some resistance against their encroachments; for if they do not, what is to hinder the colony from being ruined at once?

Friend Cook writes as follows:

Don't worry about the mistake in GLEANINGS. We enjoy seeing that you occasionally make mistakes. It makes us feel more akin. A. J. COOK.
Agricultural College, Mich.

CONVENTION NOTICES.

The Erie Co., N. Y., Bee-keepers' Association will hold its next meeting in Concert Hall, Holland, 10 A.M. and 1 P.M., Dec. 18, 1899. An interesting programme is provided.
South Wales, N. Y. MRS. CHAS. FAVILLE, Sec.

The 21st annual meeting of the New York State Bee-keepers' Association will be held at the Court house, Rochester, N. Y., Feb. 5, 6, 7, 1899. Reduced rates at hotels, and on all principal railroads. Each county association is requested to send two or more delegates. Programme and full particulars will appear in due time.
G. H. KICKERBOCKER, Sec.

The 24th annual meeting of the Michigan State Bee-keepers' Association will be held at Lansing in the capital building, Dec. 26 and 27, 1899. Reduced hotel rates at the Hudson House. Half fare on nearly all railroads. A few charge one and a third fare for the round trip. All are cordially invited.
Clinton, Mich. H. D. CUTTING, Sec.

The next annual meeting of the Ontario Bee-keepers' Association will be held in the City Hall in the city of Belleville, Ont., on the 8th and 9th of January, 1899.
W. COUSE, Sec. O. B. K. A.

The next annual meeting of the Vermont Bee-keepers' Association will be held at Burlington, Vt., Jan. 21, 22, 1899. Excellent hall accommodations have been obtained at the Van Ness House. The Vermont Central Railroad has granted round-trip tickets from the following places: Rutland, White River Junction, Cambridge Junction, Richford via St. Albans, Thion deroga, and intermediate points, to Burlington and return, for fare one way. A good meeting is expected, and all are invited. For further information and programmes, apply to
J. H. LARRABEE, Sec'y.

Larrabee's Point, Addison Co., Vermont.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

I am endeavoring, in a quiet way, to arouse the parents of school children to the dangerous and deadly effects of the tobacco habit, in order to have them demand of the school boards that they enact and enforce such rules and regulations as will effectually prohibit the handling and use of tobacco upon the school grounds, and the refusal to hire or employ, as teachers, persons addicted to the use of tobacco. "Children are the seed corn of the State," and every good citizen should feel called upon to guard and protect them during the tender years of indiscretion and thoughtlessness against tobacco and strong drink. Your name has been furnished me as an unselfish patriot, a lover of humanity, and one pledged to the reformation of evil and vicious habits. I sincerely trust you will lay your ax at the root of the crying sin of this country, and enlist the educators and philanthropists of Ohio in extirpating the tobacco habit from the public schools of Ohio.
J. B. PRICE.

Jefferson City, Mo., Nov. 3, 1889.

GOING SECURITY.

Please send one of your smokers to Mr. S. A. Miller, Cantril, Iowa; and if he breaks the rules, I will agree to pay for the smoker.

Cantril, Ia., Aug. 6, 1889. ANNIE K. MILLER.

One of my neighbors has quit using tobacco after using it 35 years. If you send him a smoker, I will pay for it if he uses it again. JOHN MCCARTHY.

Madelia, Minn., May 18, 1889.

I have stopped the use of tobacco in all ways and I advise others to stop it. I don't want a smoker, for I have one. O. W. JEFFERSON.
Acme, Mich.

I have been a great slave to tobacco for the last ten years; but by the help of God and a sample copy of GLEANINGS I quit the use of it nearly one year ago; and if you will send me a smoker for my pledge I will pay you for it if ever I use tobacco in any way again. A. J. HUSKEY.

Ingletton, Ala., June 6, 1889.

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